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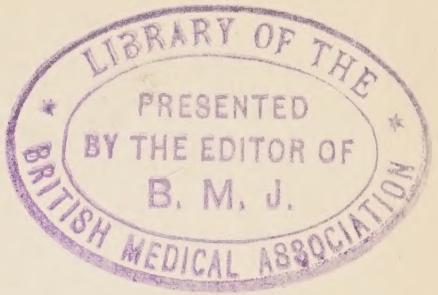
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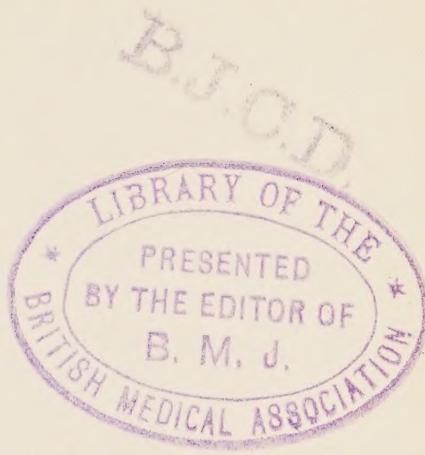


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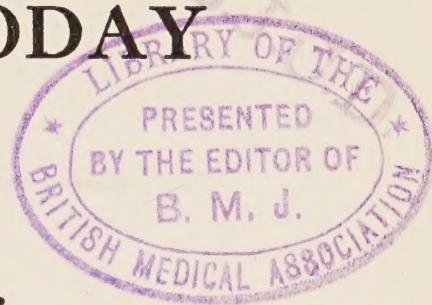
CHILD CARE TODAY

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BY

BÉLA SCHICK, M.D.

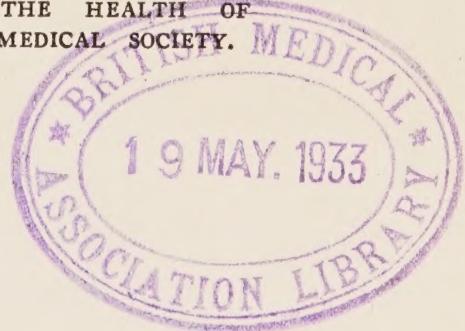


ATTENDING PEDIATRICIAN, MOUNT SINAI HOSPITAL, N. Y.; ATTENDING PEDIATRICIAN, SEA VIEW HOSPITAL, N. Y.; CONSULTING PEDIATRICIAN, TO WILLARD PARKER HOSPITAL; CONSULTING PEDIATRICIAN TO NEW YORK INFIRMARY FOR WOMEN AND CHILDREN; FELLOW OF NEW YORK ACADEMY OF MEDICINE; MEMBER OF AMERICAN PEDIATRIC SOCIETY; FOUNDER OF THE AMERICAN ACADEMY OF PEDIATRICS; CORRESPONDING MEMBER OF DIE GESELLSCHAFT DER AERZTE OF VIENNA; FORMERLY PROFESSOR OF PEDIATRICS OF THE UNIVERSITY OF VIENNA.

AND

WILLIAM ROSENSON, M.D.

ASSISTANT PEDIATRICIAN, MOUNT SINAI HOSPITAL, N. Y.; CHIEF OF CLINIC, CHILDREN'S OUT-PATIENT DEPARTMENT, MOUNT SINAI HOSPITAL; ATTENDING PEDIATRICIAN, GODMOTHER'S LEAGUE SHELTER FOR INFANTS; FELLOW OF NEW YORK ACADEMY OF MEDICINE; FORMERLY MEMBER GREATER NEW YORK COMMITTEE ON PERIODIC HEALTH EXAMINATION; CHIEF CHILDREN'S CARDIAC CLINIC MOUNT SINAI HOSPITAL; COMMITTEE ON THE HEALTH OF SCHOOL CHILDREN, N. Y. COUNTY MEDICAL SOCIETY.



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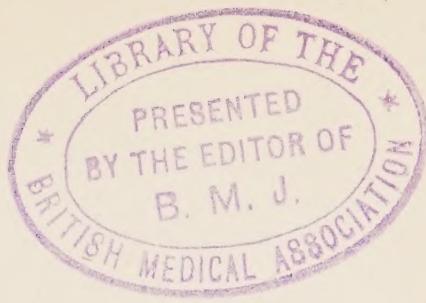
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DEDICATED
TO ALL MOTHERS
IN WHOM LIES THE POWER TO
CREATE A HEALTHIER AND HAPPIER WORLD



PREFACE

Whoever pauses for a while and gazes upon the world's happenings cannot fail to note the accelerated pace of modern life. The past score of years has witnessed modes of living ever changing at a speed undreamed of in past generations. This swiftness of movement and kaleidoscopic shifting are manifest in almost every field of endeavor. In the industrial world, in science, and in the arts, evidences are everywhere apparent. In the home and outside there has developed a general spirit of restlessness.

To cope successfully with the modern ways of life there is surely one essential: good health. Without it the laborer cannot labor, the promoter cannot promote, the artist cannot create. Ill health has spelled doom to many high ambitions and noble purposes. Physical defects even of a minor degree, by producing feelings of inferiority, have a far reaching influence on the morale of the individual. Good health implies not only a sound body but a wholesome mental attitude.

Our health program has not yet been attuned to the complexities of our present civilization. Routine examinations of large groups of adults have revealed numerous physical defects that should have been prevented or corrected in childhood. Social maladjustments as well as mental disturbances are

definitely on the increase. Crime, especially juvenile delinquency has reached startling proportions. Our insane asylums and prisons have become much over-crowded. It has been possible to trace many of these cases to preventable or remediable errors in the emotional and intellectual adjustments of childhood. The defects and errors are not peculiar to any social class or economic group. They may be found amongst the rich as well as amongst the poor.

THE FOUNDATION FOR SOUND PHYSICAL AND MENTAL HEALTH SHOULD BE LAID IN INFANCY AND CHILDHOOD

It is with these facts in mind that the authors felt that there was a real need for a book that would assist parents and nurses in both the physical care and the mental guidance of children.

The important phases of pre-natal life are first presented. The care and influences relating to this period are outlined.

The details of general hygiene and the feeding of infants and children through the preschool period are presented. Newer ideas and methods of nutrition are discussed. Numerous medical questions that usually perplex the mother are clearly answered.

The prevention of the diseases of infants and children is especially emphasized. In this connection immunization against diphtheria, the Schick test, vaccination against small-pox and typhoid inoculation procedures of recognized importance are fully discussed. The use of whooping cough vaccine, the Dick

test, immunization against scarlet-fever, measles and poliomyelitis are evaluated.

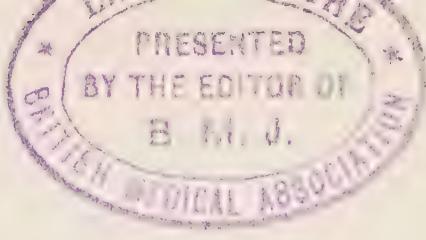
Specific milk formulas and details regarding treatment of diseases are given only passing consideration. For the safety and welfare of the little patients such care should be left to the trained physician. The general principles of nursing care with which a mother should be acquainted are presented.

The intellectual development and emotional reactions of the growing child are described. Prevention and treatment of the perplexing behavior problems that confront the parents or nurse are discussed from the point of view of social adjustment. The management of such common behavior manifestations as thumb sucking, temper tantrums, nail biting, and bed wetting is fully considered.

The method of approach in the early sex education of the child is presented.

If this book will contribute a little toward the rearing of children with sturdy and sound bodies, emotional stability and a happy out-look, the authors will have accomplished their purpose.

THE AUTHORS



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Part One

PRE-NATAL CARE



I

BUILDING THE NEW BABY

Beginning of New Life—Development of Embryo—Placenta—Umbilical Cord—Pre-natal Environment.

FEW of us realize that the care of the child begins long before its first welcome cry greets this world. Nine months previously, life really starts. It is a small beginning, just a single spherical cell, tinier than the tiniest grain of sand. This is formed by the merging or fusion of two cells, one from the mother (ovum) the other from the father (spermatozoon). This first union, small as it is, contains the heritage of the species. In it are locked all the inherited characteristics from the parents. The physical and mental capacities of the future citizen are thus partly determined.

From this moment environment plays its role in shaping his destiny. Body and mind are markedly influenced by all the conditions which surround his growth. These conditions fortunately can be largely controlled. We need no longer treat baby haphazardly, depending on old wives' tales, friend neighbor's guesses, and superstitions of well meaning relatives. Scientific knowledge and intelligent care can now be substituted for these. Forearmed with this knowledge the mother need have no fears or doubts.

The first environment of the growing infant lies

within the body of the mother. The remarkable series of changes which occur from the small particle of protoplasm to the complex human machinery of the fully developed infant is an interesting story. The combined first cell becomes implanted in the mother's womb (uterus). It grows and divides. Then the daughter cells in turn subdivide and this process continues until the embryo consists of a large clump of similar cells (morula). From this, three distinct layers of cells become differentiated, an outer layer (ectoderm), a middle layer (mesoderm) and an inner layer (entoderm). With the passing of time and the influence of complicated mechanisms these layers develop into tissues which form all the various parts of the human anatomy, heart, lungs, brain, bones, muscles, glands, skin, teeth, blood, etc. In the early stage we refer to the growing baby, as an embryo, later as a fetus. While the fetus is developing it is enclosed in a sac (amniotic sac). Within this and surrounding the growing child is a quantity of fluid (amniotic). This "bag of waters" serves as a protection for the baby against external injury and cold. It helps also in dilating the mouth of the womb during the delivery of the child.

Two other important structures are formed, the placenta (afterbirth) and the umbilical cord. The placenta is a circular fleshy mass embedded in the uterus and formed from both fetal and maternal tissues. It acts as a kitchen for the growing infant preparing its nourishment in proper form. It contains small pools or sinuses of the mother's blood into which dip finger-like projections (villi) carry-

ing small vessels from the fetus. At no time is there any mixture of maternal and fetal blood. Oxygen and the necessary materials for the growth of the child are taken up from the mother's blood and waste products are eliminated from the fetal vessels into the maternal sinuses.

The umbilical cord connects placenta and fetus. When fully formed it is usually about twenty inches in length and about $\frac{3}{4}$ of an inch in diameter. It enters the abdominal wall of the fetus at the navel. Two arteries and a large vein are enveloped within it. They carry the blood pumped by the fetal heart to and from the placenta.

To build a strong new baby the proper structural materials must be supplied. This first environment of the growing infant within the body of the mother is therefore important, certainly as important as any it will meet later on in the outside world. It is from this point of view that we should look upon the prenatal period.

The child's body is composed essentially of the same constituents as that of the mother. In the next chapter we will describe how the expectant mother may best supply these constituents.

II

EXPECTANT MOTHER AS THE BUILDER

Superstitions and Hearsay—Diet and Nutrition—Vitamines—Daily Menu—Exercise, Rest and Recreation—Bathing—Bowel Elimination—Care of Teeth—Nipples—Clothing—Marital Relations—Medical Supervision.

THE chief concern of our great-grandmothers during pregnancy was to avoid sudden frights and emotional shocks. They believed that such impressions would mark or produce a physical deformity in the child. It was thought that the sudden appearance of a mouse during pregnancy would certainly cause a birth mark to appear on the baby's body in the very shape of the animal. If the expectant mother witnessed a fire it was believed a blazing red mark would appear on the infant's face. Another type of story is that the pregnant mother must not reach for objects nor sleep with her arms above her head. They had an idea that this would cause the cord to wind around the baby's neck and strangle him. Numerous other legends have come down through the ages. There is no scientific foundation for such beliefs. All serious studies made on the subject have contradicted them.

It is surprising how many otherwise intelligent women cling to such superstitions. The only way nervous shocks and frights influence the growing in-

fant is by reacting on the mother's general health.

The important work of the expectant mother as the builder of the new baby is to furnish the material for its growth and to properly eliminate the waste products. In order to perform these functions adequately, the mother's health during the prenatal period must receive special consideration. Questions of diet, fresh air, sunshine, exercise, rest and sleep, clothes, cleanliness, and the care of the nipples are all important in their influence on the growing baby. We have indicated the infant's needs and we shall now discuss the way to furnish these needs.

Diet and Nutrition

The unborn baby derives its material for growth from the mother's blood. The source of the supply is the food the mother eats. The end products of digestion of this food are absorbed from the intestine into the blood stream and pumped by the heart to all parts of the mother's body and to the placenta from which it is carried to the growing baby.

An adequate diet for the expectant mother is of prime importance for the conservation of her own health. A peculiar situation arises if this food intake is insufficient or unsuitable. Nature protects the fetus at the expense of the mother's nutrition. If the undersupply of nourishment continues for a long time, however, the growing baby will suffer as well. The proper dietetic care of the pregnant mother insures the good health of both mother and child.

The diet of the expectant mother, to be suitable for herself and the tiny being within, should be well

balanced as well as nourishing. This does not mean that the mother must eat twice as much as she normally does. It is the varied diet that contains all the necessary elements rather than a large quantity that is important. "Eating for two" is a notion that has brought about unnecessary and unhealthy deposits of fat in the mother. The amount of food required daily by different individuals varies considerably. Probably the best guide is the mother's weight. If her original weight is normal the increase should not be more than $\frac{1}{2}$ pound a week from the beginning of the third month of pregnancy.

It is of the utmost importance that the expectant mother's diet should be well balanced. It should contain protein, water, carbohydrates, fats, mineral salts and vitamins.

Protein and water are needed for the formation of body cells. Water makes up 71.8% of the body weight of the new-born baby; protein 11.7%.

Water is found in the outside world not only as such but as a large component of many foods, especially beverages, leafy vegetables and fruits. Protein is contained in considerable proportion in such common foods as meat, eggs, fowl, milk, cheese, legumes (peas, beans, lentils).

Carbohydrates and fats are needed for the function of the cells and to maintain body heat. Carbohydrates are being continuously burned (oxidized) or stored in the body as fat and as small quantities of glycogen in the liver. The common source of carbohydrates are sugars, such as the ordinary sugars, syrup, honey, candy, and starches such as breads, corn, cereals, potatoes.

Fats make up 12.3% of the weight of the new-born baby. Our chief sources of fats are animal fat such as butter, cream, lard; oils, such as olive, cotton seed, cod liver, also nuts and chocolate.

Certain mineral salts, too, are essential. These comprise about 2.7% of the weight of the new baby. Calcium is required to form bone and the two sets of teeth. To a less extent it is present in every tissue of the body. Iron provides the means for the blood to carry oxygen from the lungs to the tissues. Phosphorus, present in very small amounts in all cells, is especially essential for nervous tissue.

Iodine is particularly necessary for the thyroid gland and chlorine is a constituent of all cells. Various other salts are required as well.

These constituents of the body are found largely in the outer coatings of vegetables, fruits and grains and in animal foods and their products.

In recent years we have learned that substances called vitamines are essential for normal growth and other life functions. Care should be taken to provide them for the building of the new baby. They are mysterious things the exact nature of which has not yet been definitely determined. They occur in minute quantities in food materials but have not been separated or isolated from them. We know that if a sufficient amount of vitamines is lacking in the diet certain abnormal conditions develop which clear up when the appropriate food is furnished. Fortunately the usual mixed diet of the average adult contains enough vitamines for protection against any serious disorders.

Most of our recent knowledge of vitamines is de-

rived from the study of their influence on lower animals. There is sufficient evidence, however, to show that their role in humans is very much the same. Up to the present time six vitamines have been established, A, B₁, B₂, C, D, E.

Vitamine A is concerned with the protection of those tissues derived from the original outer layer of cells or ectoderm. In the absence of this vitamine a serious disorder of the eyes called Xerophthalmia develops and there is also increased susceptibility to various infections, especially of the respiratory tract. Vitamine A is necessary for growth and successful reproduction. It is found in comparatively large amounts in milk and dairy products, eggs, liver, green leafy vegetables and cod liver oil.

Vitamine B is composed of at least two parts, B₁ and B₂; B₁ is sometimes referred to as F and B₂ as G. B₁ is the anti-neuritic vitamine, in the absence of which various nerve disturbances occur including marked irritability and restlessness. It is considered to be essential also for the maintenance of appetite, growth and lactation. B₂ is often called the antipellagric vitamine because in the absence of this vitamine symptoms resembling those found in pellagra frequently develop. The common sources of Vitamine B are wheat germ, yeast, cereals, and banana.

Vitamin C is an important substance essential for the prevention of scurvy. This disease was formerly very common among babies. The outstanding symptoms are hemorrhages in the gums and very painful tender limbs. Vitamine C is found abundantly in the citrus fruits such as orange, lemon, grapefruit;

also in tomatoes, raw, cooked or canned, and in raw cabbage and turnips.

Vitamine D is called the anti-rachitic vitamine. It is required for the proper formation of bone and teeth. In some curious way it aids in the assimilation and utilization of calcium and phosphorus. In the absence of this vitamine rickets develops. In a similar way damage is done to the development and formation of the teeth. We know that tooth buds of the baby's permanent teeth are laid as early as the fifth week of pregnancy. How important it is then to supply the essential ingredients early to prevent possible dental trouble in years to come! The richest sources of Vitamine D are cod liver oil, viosterol (irradiated ergosterol), egg yolk and liver. In milk and dairy products it is found in appreciable amounts.

Vitamine E is necessary for reproduction. In its absence there is failure of placental function. This Vitamine is found in considerable amounts in fresh lettuce and the oil of wheat embryo.

The study of vitamines is now in its early stage. During the past few years considerable progress has been made. Vitamine D has been manufactured by the exposure to ultra-violet light of a definite chemical compound called ergosterol. Encouraging reports regarding the synthesis or manufacture of Vitamines A and C have been published. Undoubtedly further scientific investigations will reveal new vitamines and will, we hope, clearly define their true nature.

To fulfill all the nutritional requirements, a day's food for the expectant mother should include:

1. Milk, 3 glasses. This amount should include the total intake for a day used either as a beverage, or in the preparation of cocoa, custards, puddings and cereals.
2. A cooked cereal made from the whole grain as rolled oats, unpolished rice or barley.
3. Bread, preferably whole wheat.
4. Vegetables in abundance especially the green variety as spinach, lettuce, celery, string beans, peas. At least two green vegetables should be eaten daily. Mineral salts are found directly under the peel in root vegetables and in fruit. This should be considered in cooking. Vegetables should be steamed or boiled in very little water so that none of the valuable salts contained therein will be dissipated. The water of course should not be thrown away but used as part of the food. No soda should be used in cooking as this destroys vitamines.
5. Any fruit cooked or raw.
6. Meat (including red meat) or fish in moderate amount and an egg.
7. Butter or olive oil or cream cheese.
8. Desserts such as junket, jello, custard, puddings.
9. Water, 4 to 6 glasses. Water aids in digestion and assimilation of the food and in elimination. Fruit juice may be added.
10. Cod liver oil, 1 tablespoonful during the winter months.
11. In those districts where goitre is prevalent iodized salt should be used for cooking and on the table, but only by order of the physician.
The heavy meal should be taken in the middle of

the day. Foods that are known to produce digestive disturbances should be avoided. Tea and coffee should not be taken in excess and alcoholic stimulants only on medical advice. Smoking if indulged in at all should be done in moderation.

Exercise, Rest and Recreation

Exercise in the open air is essential for the expectant mother. The stimulation of the appetite and the muscular activity involved is beneficial to both mother and the growing baby. Walking in the fresh air is the best form of exercise. A daily walk of one hour followed by an equally long rest period should be taken. Light housework in well ventilated rooms is permissible. Standing for long periods, lifting or moving heavy objects should be avoided. The more strenuous exercises including tennis, golf, swimming and dancing require special advice in each individual case and should be taken only by permission of the obstetrician.

Too much emphasis cannot be placed on the beneficial influence of open air and of sunlight. These stimulate our body tissues and the sunlight in some way aids in the deposit of calcium in the bony structure.

As the expectant mother tires more easily, frequent rest periods are necessary and a sleep of nine hours each night with open windows is desirable.

Cheerful recreation should be encouraged. Expectant mothers too often have a tendency to lead dull and monotonous lives indoors. Outdoor amusements are preferable. Motoring should be done only

at moderate speed over good roads. Long trips should be avoided. At present little is known of the influence of aerial flights on the pregnant woman or the unborn child. Until such knowledge is available the expectant mother should not use this mode of travel.

Plays and moving pictures, shown in well ventilated halls or theaters, may be included in the list of pastimes.

The father and friends should co-operate in preventing worry and mental depression on the part of the expectant mother. Excessive worry and nervousness, by undermining her health, may have a deleterious influence on the health of the growing baby.

Bathing

A daily bath, or a shower at the customary temperature should be taken. It is obviously an important hygienic measure and it stimulates elimination through the skin. Great care should be exercised to guard against a fall in getting in and out of the bath tub. During the last two months only showers or sponges should be taken to avoid the introduction of bacteria into the vagina from the tub water. There should be no vaginal douching.

Bowel Elimination

The expectant mother must not only eliminate her own waste material but that of the growing baby as well. It is essential that this function be carried out adequately. Constipation is a common occur-

rence during pregnancy partly due to the pressure of the growing uterus. Mild cases can sometimes be treated successfully by stressing coarse foods, fruits and vegetables in the diet and by drinking eight glasses of water a day. A glass of hot water before breakfast is helpful. Regular habits are most important.

If a mild laxative is found necessary, mineral oil, fluid extract of Cascara Sagrada or Compound Rhubarb pills may be used. A pleasant mixture is made up with one tablespoonful of mineral oil and one tablespoonful of grape juice, to be taken one half hour before breakfast and dinner.

In an obstinate case of constipation special instructions from the obstetrician should be sought.

Care of the Teeth

There is an old time prejudice against dental interference during the prenatal period. This is entirely unjustified. The teeth of the pregnant woman have a tendency to undergo softening which has given rise to the old adage "for every child a tooth." This softening is due to the increased demand for calcium or lime by the growing baby. This depletion can be restored by maintaining a proper diet as described.

Early in pregnancy the mother should have her mouth examined by a competent dentist and have all decayed or diseased teeth properly treated. There is no operation on the teeth that cannot be done with safety.

Care of the Nipples

Every healthy mother should nurse her baby. In order to do this adequately when the time arrives, special care must be given during the prenatal period to the care of the nipples. This care should begin about the sixth month. Early in pregnancy, an imperceptible crust from the secretion of the nipples forms on the surface. If this is not removed before the baby begins to nurse, the sensitive skin area underneath is apt to crack and produce very difficult and painful nursing. In the daily routine the mother should wash her hands and with a piece of sterile cotton clean each nipple thoroughly with white soap and water removing all the dry particles. The nipples should then be dried and massaged using lanoline or vaseline, gently drawing them out with the ends of two fingers and thumb. Instead of massage, some authorities prefer to have the nipples bathed in a 50 per cent alcohol solution after washing and drying. If the nipples are flat or inverted their care should begin early in pregnancy and the nipples drawn out two or three times a day. This is essential to harden the nipples and prepare them for the baby's nursing.

Clothes

The clothes should be loose, comfortable, of light weight and hanging from the shoulders. They should moreover be attractive so that the mother will not hesitate to be seen out of doors. No tight bands should be used for these interfere with the proper circulation so essential at this time. Suspen-

der garters should be worn, the pressure being placed on the shoulders. Round garters may produce swelling of the legs and varicose veins and should never be used. The same applies to elastics in bloomers and rolled stockings.

Women who do not ordinarily wear corsets will require none especially during the first three or four months. Later a properly fitted abdominal binder or a maternity corset may be needed for support to prevent undue fatigue. A brassiere which supports the breasts is also helpful.

Shoes should be well fitting and comfortable with low wide heels. Pointed shoes should not be worn as they constrict the feet, causing corns and other deformities. Exercise for the mother in the open air is essential for the health of the growing baby. This cannot be taken properly in ill-designed shoes.

Marital Relations

It is impossible to lay down any general rule regarding marital intercourse during pregnancy. In each case the question should be decided by the physician. Certainly during the last two months no intercourse should take place because of the danger of infection. When previous miscarriages have occurred intercourse is inadvisable during the whole period.

Medical Supervision

At the very beginning of pregnancy every woman should put herself under the care of her physician. The many changes that occur during the prenatal

period place an unusual strain upon all the organs which require careful medical supervision. A history should be taken by the physician, including family health, followed by a complete physical examination to determine any abnormalities. The urine should be examined, blood pressure taken and weight recorded. The pelvis should be measured to learn whether a baby of usual size will be able to pass safely through the birth canal. The expectant mother should visit the physician once a month during the first five or six months, thereafter every two weeks or in some instances weekly. At each visit the urine should be examined and the blood pressure recorded. Any unusual symptoms as swelling of the hands, feet or face, blurring of vision, severe headache, prolonged vomiting, abdominal pain, the slightest show of blood, a sudden or gradual diminution in the quantity of urine passed, must be reported promptly as they may indicate some complication requiring immediate attention.

Only by regular medical supervision can early abnormal body reactions be detected. When found and treated, the disastrous results to mother and child which sometimes follow in neglected cases can often be avoided.

The health of the new baby growing within the uterus of the expectant mother is influenced by all the factors described in this chapter. Through the intelligent use of the program outlined, the mother, as the builder of the new baby, may bring about a happy result.

III

PREPARING FOR THE NEW ARRIVAL

Selection of Nurse—The Nursery—The Layette—Toilet Supplies—Crib—Bathinette—Scales.

BEFORE the baby leaves its inside world the scene should be prepared for his arrival in the outside world. For his continued growth and development as a separate individual, baby's new life will require a different kind of care. He will forthwith be a member of society and entitled to certain rights and privileges. Among the things to be provided from the very start are trained supervision, a supply of food, preferably breast milk, fresh air and sunshine, protection from cold and a comfortable place to lie in.

If the mother is not going to take entire charge of the new baby we must consider selection of the nurse. If the infant is to have a nursery, and every effort should be made to provide him with one, we must give thought to its location and equipment. Baby's clothes, bath tub and scales should be carefully chosen.

Selecting the Nurse

The same care with which the mother chooses her physician should be exercised in selecting the nurse. Upon the latter devolves a great many of the important details regarding the baby's health espe-

cially during the first weeks. The nurse should be trained in modern methods of handling new-born infants. The proper start will help the mother a great deal when she assumes the responsibility of the child's care. Too often have we seen the untrained "baby" nurse employ methods of bygone days, disregarding all our knowledge of cleanliness and asepsis and the importance of early habit formation. Many of them display an utter lack of knowledge of the principles and methods of sterilization. Often in their attempt to protect the infant from colds, they bundle it up so completely as to produce a severe prickly heat rash. Whenever the infant cries they resort to the pacifier or to lifting, holding or rocking it. They often presume to know more than the doctor about the baby's welfare and try to prejudice the mother against the newer ways. Such methods are relics of our great-grandmother's day and should not be countenanced. There is a sufficient number of well trained nurses from whom to choose.

The nurse's health is an important factor. No nurse should ever be permitted to take care of an infant until a complete physical examination has proved her free from disease. Intelligent care in the selection of a properly trained and sympathetic nurse cannot be too emphatically stressed. It is most essential for the welfare of baby as well as of the mother.

The Nursery

The best room in your home is none too good for the new baby. During the past few years the sig-

nificance of sunshine and fresh air for the maintenance of good health and prevention of disease has been realized more than ever before. Especially is this true during the period of infancy. We know that sunshine is a very definite factor in the prevention and cure of rickets. An abundance of sunlight and fresh air helps also to prevent the development of ordinary colds. The baby's nursery should be the sunniest room in the house. If possible this room should have a southern exposure and be free from draughts. It should be as large and airy as possible.

The furnishings of the nursery should be very simple, free from upholstered chairs, hangings and carpets. These act as collectors and dispersers of dust which is irritating to the delicate mucous membranes of the baby. Shades should be provided at the windows but no curtains. Everything in the nursery should be washable.

Where fireplaces or radiators are used these should be carefully guarded. In cool weather, before the regular heating plant has been started for the winter season, an electric heater may be employed to warm up the nursery. A gas heater should never be used.

Clothing for the New Baby

During the first year the infant grows more rapidly than at any future time. The preparation of clothes should include therefore only those needed during the first few months. There is a tendency to prepare entirely too much. In selecting the clothes

for the new baby, due consideration must be given to the season of the year.

For the winter baby the following is a satisfactory layette:

(a) 3 flannel binders. These are used to support the abdominal wall during the first two months. If there is no protrusion of the navel and the abdomen is not relaxed the binders may be discarded after one month. The dimensions are eight inches wide and eighteen inches long.

(b) 3 or 4 silk and wool bands, 2nd size. These are short sleeveless garments with narrow shoulder straps. The reinforced tabs at the lower part of the band are fastened to the diapers. The bands are used when the binders are discarded.

(c) 3 or 4 silk and wool or long sleeved cotton shirts size 2. These are worn over the band. Rough heavy under clothes should not be used as they are irritating to the infant's delicate skin.

(d) 3 Gertrudes or skirts made of flannel hanging from the shoulders by straps. These are 23 inches long.

(e) 2 nainsook slips worn over the Gertrudes. These are not a necessity and if purchased may be used only on special "holiday occasions."

(f) 3 or 4 dresses or slips made of sheer batiste or nainsook. These should be simple in design without any lace adornment about the neck. Lace frequently causes an irritation of the baby's skin. The length is 23 inches.

(g) 4 pair silk and wool socks size 4 or 4½. These are pinned to the diapers.

(h) 3 dozen diapers, 2 dozen 20 inches square, 1 dozen 30 inches square. Bird's-eye or knitted material are the best.

For night wear the heavy weight or double fold gown worn over the shirt and diaper is useful. It is made of knitted absorbent material and may be tied at the bottom for complete protection from draughts. Two blankets should be provided, one of homespun 32 inches by 37 inches, the other for the crib, all wool, 42 inches by 60 inches.

For outdoor wear the Bunting made of eider-down or a padded silk coat may be used. In mild weather a sweater or jacket furnishes sufficient protection.

If the baby is a summer arrival, lisle bands and shirts should be substituted for the silk and wool. The Gertrudes may be entirely omitted during the hot summer months and no socks need be worn.

Toilet Supplies

The infant's supplies should be kept entirely separate from the regular household articles. Conveniently arranged nursery bottle sets may be purchased for the following requisites:

Oil	Soap
Alcohol	Cotton
Nipples	Swabs
Boiled water	Bath thermometer

Baby's Bed

The new baby will spend the greater part of the day in bed. It is important therefore that this should

be selected with considerable care and thought.

The bassinet so frequently purchased for its decorative or ornamental value is distinctly unsatisfactory. There is usually insufficient air supply and before long the growing infant has no room for free activity. Moreover, it is not an economic purchase as sooner or later a crib will have to be provided.

The best choice is a regulation size crib 28 inches by 54 inches. A small sized crib should be bought only if lack of room makes it imperative. The framework should be washable. Another important consideration is that of the finish. The ordinary painted bed should not be purchased. At the age of eight or nine months the baby may discover a new use for his teeth and the result may not only be a damaged crib but a poisoned system. It is not an uncommon occurrence for infants to bite the paint off the crib, and the ingestion of such paint is decidedly harmful. Its control is often a difficult problem. From this standpoint the most suitable crib is a metal one, finished with several coats of baked enamel. This process of baking makes the enamel so hard and durable that no teeth can penetrate its surface. This method of baking cannot be used on beds made of wood.

A useful contrivance for sleeping accommodations especially adapted for suburban or community life is the kiddie-koop arrangement. This includes a wire bedspring of small size mounted on four wheels with a mattress on the springs. The four sides consist of high wired screens. A screen for the top is also provided which gives the baby complete protection from flies and mosquitoes. The entire

bed is very light in weight so that in suitable weather it can be easily moved out on a porch or lawn.

A mattress preferably of kapok should be provided for the crib. Kapok is a comfortable and non-absorbent stuffing. Infants and children show no sensitivity to this material as they sometimes do to horsehair or feathers. The ticking should be of fast color so that no dye ever touches the baby. A rubber sheeting completely covering the top of the mattress is essential. A dozen infant's pads should be at hand for further protection.

The baby's carriage should be of simple design built upon good flexible springs. The inner part must be well padded. It is especially important that no hooks or metal parts protrude in such a way as to injure the baby.

Baby's Bath Tub

The most important consideration in the selection of the bath tub is cleanliness. A simple enameled or metal bath tub may be used. A new satisfactory type is the bathinette which is a combination table and enameled tub. The latter fits into a rack of convenient height. It is suspended underneath the adjustable canvas table and can be readily cleaned. It has an outlet for drainage. This combination is also made with a rubber bath tub which may be easily folded. A distinct disadvantage of this style of bathinette is the difficulty of keeping it clean as dirt may readily accumulate in the creases of the rubber. If this combination is used it must be scrupulously washed, dried and aired each day.

One of the guides to the baby's normal progress and general health is his weight. The scale tells the story. The ordinary spring or dial scale is difficult to manage and often inaccurate. The best scale is one which is adjusted with weights and provided with a removable basket or pan.

This completes our preparations and we shall next consider certain problems concerning delivery of the new baby.

IV

THE DELIVERY

Home or Hospital—Labor Pains—Birth of Baby—Co-operation of Mother.

WHETHER baby is to be born at home or at the hospital is an important question. Each place has its advantages. At home there is usually more room, traveling for the mother is eliminated and baby on his advent can be placed directly in his own nursery. However, the number of mothers preferring to be confined in a hospital is rapidly increasing. The many comforts provided for the mother are becoming more generally recognized. There is a well founded feeling of safety in case of unusual developments. The internes and nursing staff are at hand at a moment's notice. Every facility is furnished in the delivery room. Perfect asepsis can be maintained much more easily than at home. In the hospital measures for the relief of pain can be more readily controlled. Then, too, the responsibilities and care of the household can be more easily forgotten.

The weight of evidence is definitely in favor of the hospital. It is most important, however, to select a hospital that maintains a high standard of cleanliness and efficiency. Among the many private institutions, especially devoted to obstetrics, which have

sprung up in recent years there are some that have not maintained this high standard. Especially is this true in their care of new-born infants. This phase of their work seems to be much neglected.

The obstetric hospital of the future must devote more space to new-born babies. In the hospitals and sanitaria as generally constructed at present, the new baby is placed in a nursery with fifteen or twenty other infants, at times even more. Such close proximity must necessarily be a distinct disadvantage in the event of an outbreak of infection, although there is close supervision and isolation of suspicious cases to minimize this possible source of danger.

Separation of the new-born children at least by glass partitions should be provided in the nursery or there should be a small ante room especially equipped adjoining the mother's room. With such an arrangement the obstetric hospital will then be unquestionably the place for the birth of the baby.

The Birth

Placed in the care of a physician experienced in obstetric practice and a well trained nurse, the mother need have no fears when the day of confinement arrives. With all the preparations made for the coming of the new baby her mind may be perfectly at ease.

We have previously traced the growth of the embryo and fetus within the uterus of the mother.

Usually at the end of nine months the baby is fully developed and ready to leave its abode. It is ready to traverse the birth canal, from the uterus through the cervix (the lower part of the uterus) and the vagina to the outside world. It is carried through, usually head first, by the contraction of the uterine and the abdominal muscles. It is these contractions which produce the labor pains. Without them a normal delivery could not occur. The baby takes no active part in the mechanism of labor. Soon after baby arrives the umbilical cord is tied and cut near the navel. This marks the beginning of his independent existence in the outside world.

Everything regarding the delivery should be left to the physician in charge. The mother must place in him her utmost confidence. She should give him her closest co-operation to insure a happy result. It is well for mothers to realize that they play an important role in bringing this about. Impatience on their part during labor and unwillingness to bear pain sometimes compel the physician to use an anesthetic and to apply forceps when it would be far better for the future of both mother and baby to allow the delivery to take its natural course. There are, of course, certain unusual conditions which require interference. Physicians are well aware of them. But the vast majority of cases, being normal deliveries, do not need the rush for artificial aid so characteristic of this day. At times it means a considerable sacrifice on the part of the mother but it is for a just and worthy cause. The physician, too, must be ready to give the necessary time or have

a trained assistant watchfully waiting. Such co-operation will be fully compensated by the birth of a normal healthy baby.

The growth and care of the infant will form the subject of the next part of our book.

Part Two
INFANCY

I

GENERAL CARE AND HYGIENE OF BABY

Handling the Baby—Care of Nursery—Daily Bath—Care of Mouth, Eyes, Ears, Nose and Genitals—Procedure in Bathing—Care of Skin—Chafing—Milk Crust—Prickly Heat—Jaundice—Clothing—Diapers—Air and Sunshine—Sun Lamps—Exercise—Sleep—Summer Vacation.

SUDDENLY baby appears in a new world. Thus far the unborn child has led a sheltered life, nourished through the placental circulation, kept just at the right temperature and protected from all injury. He must now live as a separate individual under entirely different surroundings. The change is so complete that one often wonders how such a small being can become adjusted to its new life. Much will depend on the mother's or nurse's intelligent care from the very outset.

A definite plan of procedure should be inaugurated at once. This plan should be regularly and implicitly followed, as frequent change of methods react unfavorably on the baby. This régime must include such subjects as handling the baby, care of the nursery, baby's bath, clothes, fresh air and sunshine, exercise, sleep and feedings.

Handling the Baby

Excessive handling is one of the most serious offenses committed against the baby. Mother, father,

grandmas and grandpas as well as other relatives are so proud and happy over the new arrival that they want to be near him constantly. They want to caress and fondle him at every opportunity. They feel that they just must pick him up and kiss him. Especially is this true of the first baby.

Of course we realize that it is a difficult matter to harden our hearts against the tiny newcomer with all his cuteness and appealing helplessness. What a temptation to make a fuss over him! But this is the very thing that must not be done, for its effects are definitely harmful, sometimes disastrous. The excessive handling of the infant has also a very pernicious influence on his mental development. In passing we may say that this practice soon reacts upon the infant so that he demands constant attention and if this attention is refused there will be considerable disturbance in the household. Baby is readily spoiled. This subject will be fully discussed later.

The infant's body at birth is free from germs or bacteria. It is virgin soil. Adults, on the other hand, even when healthy, harbor or carry various strains of organisms in the nose, mouth and on their hands. These bacteria, which may not be at all harmful to the grownup, may produce a cold with possible serious complications or a skin infection in the baby. When this actually happens the whole household becomes alarmed and all the fond relatives wonder just how the baby became sick after all the care they have constantly given him.

If any adult in the house has a cold or any other infection, it is doubly important to keep him or

her away from the baby. If it be the mother or nurse who has the cold it would be better if some one else, for the time being, would take care of the baby. If this is impossible, the mother or nurse should wear a band of gauze over the mouth and nose while handling him, as this affords some degree of protection.

The hands should always be washed before touching the baby.

Some people object to all these precautions but the mother must be firm in the knowledge that she is protecting the baby from unnecessary illness. There should be no interference with this hygienic régime.

We often hear it said that although "in the old days" our mothers were not so particular about the many details of hygiene, the babies grew up to be fine healthy boys and girls. The fallacy of this statement lies in the fact that only the strongest survived. The many infants that succumbed during the first year of life have been forgotten. Careful statistics reveal that the infant mortality rate has steadily decreased since more scientific methods have become better known and more widely used. Here lies our opportunity for further improvement.

Care of the Nursery

The nursery should not be kept too warm. If the room is too hot the baby frequently becomes restless and fretful, he perspires excessively and may develop a heat rash. The sudden change from an over-heated nursery to the outdoors increases the

tendency to produce colds in the susceptible child.

The temperature of the nursery during the day should be 65° to 70° F.; at night, during the first two months, between 60° and 65°; later as low as 55° F.

The baby's room should be thoroughly aired three times a day, in the morning, at noon and in the evening. All the windows should be opened top and bottom for fifteen or twenty minutes. The door, too, may be kept open. During this time the child should be placed in another room.

Under no circumstance should the drying of diapers or of clothes or the cooking of food be permitted in the nursery.

The room should be arranged so as to avoid any draught around the crib.

The Bath

Baby's first bath is an oil rub which removes the layer of fatty material (*vernix caseosa*) which covers the skin at birth. After that a daily sponge bath is given until the stump of the cord falls off and the navel is healed. This usually occurs about the tenth day when the full bath in the tub may be given.

The daily bath throughout infancy and childhood should become a fixed habit. It should always be given at the same time each day. During infancy the most preferable time is the evening before the six o'clock feeding. The warm bath is not only cleansing but relaxing and helps to insure a comfortable and restful night's sleep. During the heat

of the summer months an additional bath may be given in the morning before the second feeding.

A well regulated bath has a soothing influence on the baby and is a pleasurable experience for him. The mother or nurse should always arrange to have everything at hand before beginning the baby's bath, having the infant's toilet tray and clothes within easy reach. Mother or nurse should be perfectly comfortable and at ease throughout the procedure. The hands should always be washed before bathing the baby.

If the simple metal or enamel tub is used (see description of tubs page 25) two low chairs without arms, one for the mother or nurse, and the other for the tub, should be conveniently placed near each other. A waterproof apron for the mother is very useful. If one of the popular bathinettes is employed the mother is usually compelled to stand. However, the convenience of having a convertible folding table and tub seems to have a special appeal.

During the bath, the room should be kept warm but not overheated, about 75° F. Care should be exercised to avoid exposure to draughts.

The temperature of the water during the first two months should be 100° F.; for the next four months, 97°; after six months, 95°; during the second year, 85° to 90° F. The temperature of the water should always be determined with a reliable bath thermometer. The tub should be about half filled with water.

Before undressing the baby for his daily bath, the mouth, eyes, ears, nose and genitals should be inspected. The mouth must never be washed as the

tender mucous membrane may thereby be injured and infection may follow. The baby's mouth takes care of itself. If white flaky areas resembling coagulated milk should be seen on the lips or inside the cheeks, the condition may be thrush. This is an infection due to a fungus most frequently spread by improperly sterilized nipples, bottles, cloths, and in nursing infants, by an unclean breast. The disease, though usually not serious, may be very annoying to the baby causing it to refuse its feedings and be restless and fretful. If present the affected areas in the mouth should be gently swabbed with a 2 per cent solution of chlorate of potash every two or three hours. If the condition persists the baby's physician should be notified.

In the course of washing the face, the eyes may be washed with a small clean piece of moistened cotton. If a slight discharge of pus is present in either eye it may be cleaned with boric acid solution 2 per cent, followed by the instillation of one drop of 10 per cent argyrol solution. White vaseline may be applied to the lids to prevent sticking. If the discharge is profuse, or if it persists more than a few days, it should receive medical attention.

The nostrils and lobes of the ears may be cleansed with small swabs of cotton dipped in mineral oil if considerable secretion or dirt has accumulated.

The genital organs require attention. If our baby is a girl, the external genitals should be cleansed with a fresh piece of absorbent cotton dipped in boiled tepid water once a day. If any discharge is seen the physician should be notified. It is important in cleansing the buttocks while changing the soiled

diapers that no stool be rubbed into the genital organs. Always wash in the direction away from the organs not toward them. The importance of this cannot be overstressed.

If our baby is a boy the foreskin should be carefully drawn completely back three or four times a week and the parts washed with absorbent cotton and warm water. It is then pulled forward again. There should be no forceful manipulation. If the foreskin is tight and cannot be pushed back, medical advice should be sought.

Before giving the full bath, baby's head and face should first be washed and dried; the face being washed with warm water, no soap, and patted dry with a soft towel. The scalp, the ears and the skin behind the ears, should be washed with a mild soap and water, and then rinsed over the tub and thoroughly dried.

The rest of the body is completely soaped while the baby is in the lap or on the table, and the baby is then laid gently and gradually in the tub, feet or buttocks first with the head and shoulders well supported above the water by the mother's left hand. He should remain in the tub two or three minutes during which the body should be thoroughly rinsed with special attention given to the cleansing of creases in the neck, under the arms and in the groin.

Several fresh pieces of absorbent cotton furnish the best means for washing the baby. Under no circumstance should sponges be used as they cannot be cleansed thoroughly. If wash clothes are employed, separate ones should be provided for the

buttocks, and these should be boiled every day.

The baby should be carefully removed from the tub and dried rapidly with a soft bath towel. Drying should be accomplished by patting, not by rubbing, as the delicate skin is easily irritated. After drying, talcum powder should be applied, the excess removed so that no accumulation be allowed to form in the creases. If this is not done the powder frequently becomes wet and forms hard masses which cause irritation of the skin and discomfort.

After the bath the feeding is given, and baby is put to sleep.

Care of the Skin

Baby's skin is much more sensitive than a grown-up's and requires careful attention to keep it clean and healthy, free from chafing and prickly heat. Certain precautions should always be taken.

1. Always wash your hands before handling the baby
2. Use a mild soap
3. Always rinse the body thoroughly
4. No brisk rubbing
5. Protect the folds and creases of skin
6. No rough underclothes or towels
7. Avoid overheating of the body with clothing or overheated rooms
8. Change diapers immediately when soiled
9. Boil diapers and underwear thoroughly
10. Keep the baby away from any one with an infection of the skin

If chafing develops, soap and water should not be used over the affected areas. The parts may be cleansed with mineral oil or pure olive oil. If chafing develops on the buttocks, the diapers should be changed as soon as they become wet or soiled. When indoors, the diaper should be removed for several hours a day and the skin exposed directly to the air.

Prickly heat appears as fine red raised spots with tiny gray centers. It is due to excessive perspiration. Lighter clothes should be used with cotton next to the skin. The bath should be given twice a day until it disappears and the body frequently powdered with borated talcum.

A yellowish discoloration of the skin may appear in the new-born baby at the end of the second day. As this jaundice occurs in about thirty or forty per cent of all infants at this time, we look upon it as a normal physiological condition. It usually disappears within a week and requires no special attention. If the discoloration persists for more than two weeks the attention of the physician should be called to it.

The so-called "milk-crust" (*seborrhoea capitis*), a brownish yellow, waxy looking, greasy substance, is frequently seen on the scalp of infants during the first year. It consists of a mixture of fatty secretion of the small glands of the scalp, desquamated cells, and dirt. It should be removed by first softening with oil or lanoline, and the scalp washed thoroughly with warm water and soap, followed by the application of some ointment as a lanoline and vaseline mix-

ture. If necessary this procedure may be repeated two or three times.

Clothing

The most important consideration in dressing the baby is to make him comfortable. There seems to be a strong tendency among many mothers to bundle up the babies entirely too much.

Baby should not be dressed too warmly nor should his movements be restricted by wrapping him around with blankets. The clothing should be designed to permit the utmost freedom of movement. The details of the layette have been described on page 22. When fully dressed, he has on a diaper, a binder, a band, a shirt, a flannel skirt or Gertrude, a simple dress or slip.

It is essential that the clothing should fit. If it is too tight, free movements of the extremities and the chest in breathing are hampered. If it is too loose it gets wrinkled and bunched up into folds which cause considerable discomfort. Under no circumstance should elastic bands be used as they interfere with the circulation. All clothes should be hung from the shoulders, never from the waist.

Safety-pins should be used sparingly and with the greatest caution. If unprotected they may produce chafing of the skin. If left open or if they become unfastened they may prick the baby's tender skin and cause much unnecessary suffering. The safety-pin should never be left within the baby's reach, as he may suddenly decide to put it in his mouth and swallow it. This accident has occurred a number of times with disastrous results. A safe safety-pin has

recently been devised by a physician, Dr. Woodward Colby, St. Paul, Minn. It is so designed that the sharp point is always guarded whether the pin is open or closed.

It would be most desirable to do away entirely with the use of safety-pins in the nursery. A complete set of baby garments, including diapers, have been made without any pins or buttons. (Vanta Baby Garments.) Bows or twisted tapes are substituted for pins or buttons wherever the garments or diapers require fastening. We feel that any garment or device which dispenses with pins, and so makes the swallowing of an open safety-pin an impossibility should be heartily welcomed and endorsed. It is foolhardy to subject one's baby needlessly to this source of danger.

A diaper which combines bows and buttons instead of safety-pins may also be procured. This is designed with tapes on either side and three sets of button-holes with removable buttons. This arrangement makes it adjustable to the growing baby. (Pynless Diaper.)

The baby should be dressed while lying in a flat position on a bed, table or lap. It is very cumbersome and inconvenient to attempt to dress him in any other way. There should be a complete change of clothes once a day.

Common sense must, to a great extent, guide the mother in determining how much clothing baby should wear. More reliance must be placed on the weather and temperature than on the season. With irregular climatic conditions we often have some cool days in the summer and a warm or mild period

during winter or spring. Changes in the outer garments of the baby should be made to conform to these variations. Infants feel the heat just as keenly as adults, and yet in warm weather we have often seen the mother dressed in the lightest and sheerest clothes carrying the baby wrapped in a blanket over two or three sweaters. This is unintentional cruelty. During a hot spell of summer it is most essential that the baby be kept as cool as possible. In the house nothing but a diaper should be worn. When outdoors only a slip of sheer batiste need be added. Babies who are dressed too warmly become irritable and restless and are apt to have digestive disturbances, especially loose bowels, during the hot weather.

It must be remembered that the average city apartment or house, even in the winter, is kept at a mild summer temperature during the day. While indoors, the baby does not require special protection from the cold because of the winter season. At night, however, or when outdoors such protection may be provided by warm sleeping garments and blankets, the number depending on the temperature. Over-dressing in the house subjects the baby to "catching cold" when taken outdoors.

Diapers

The square diapers made of bird's-eye or knitted material are preferable. For the baby the advantage of the square type is in its greater comfort because it is fitted like pants and leaves no excess material between the legs. For the mother or nurse the advan-

tage of this type is that it usually becomes soiled in one spot making it less difficult to launder.

Diapers should be changed whenever wet or soiled to prevent chafing of the skin. When soiled with stool they should receive a preliminary washing at once, and then be allowed to soak with the wet diapers in a covered enameled pail. Diapers should be carefully washed every day. They should be rubbed with a mild soap, then boiled for fifteen minutes and thoroughly rinsed in several changes of water. No starch or bluing should be used. The diapers should be completely dry before using as dampness may cause an irritation of the skin. A diaper should never be used twice without washing.

Rubber pants worn over the diapers as a regular article of clothing are distinctly bad. By keeping the moisture and heat in the diaper the skin becomes chafed very quickly to the great discomfort of the baby. Only on rare and special occasions as in traveling should they be used.

Airing

The value of an abundance of fresh air and sunshine for us all, adults as well as children and infants, has received such wide publicity that it has become common knowledge. The invigoration that comes from being outdoors on a bright brisk sunny day is something that few of us have not felt.

It is during infancy that fresh air and sunshine bestow their most precious and lasting benefits. They play an important role in the growth and development of the baby. Fresh air furnishes pure

oxygen for the blood and body cells. It stimulates the appetite and has a fine tonic effect on the tissues. It produces healthy red cheeks and improves the muscular development. Both fresh air and sunshine help to prevent the common cold.

Sunshine is an important factor in the prevention and cure of rickets as it brings about the utilization and deposit of calcium in the bony structure. These remarkable results are produced by the ultra-violet rays which emanate from the sun. During the winter season however, the duration of the sunshine is much shorter than during the summer and the intensity of the ultra-violet rays is diminished. The transmission of these rays are interfered with by fog and smoke.

Airing should begin early in life. If the baby is born during the winter he may be completely dressed for the outdoors and placed at an open window with the sun streaming in when but two weeks old. The time of exposure should be increased by five or ten minutes each day beginning with a fifteen minute period. This airing should usually be given at about noon when the sun is the warmest. At four weeks the baby, properly clad, may be taken out of the house and allowed to remain in the fresh air for one hour. His face should be exposed to the direct sunlight, his head being occasionally turned so that one cheek does not receive all the rays. Adequate protection from strong winds should be provided and the baby should not be taken out in rainy or sleety weather. A cloudy day, however, should not interfere with his regular airing. Sleeping outdoors is healthful. Baby's time for airing should be gradu-

ally increased so that when he is three months old he should be out from ten A. M. to three P. M. This schedule can be followed during autumn, winter and early spring.

During the summer, however, the schedule for baby's airing should be much more liberal. In general it may be said the more fresh air the better. If our baby is a summer arrival he may be taken outdoors at the early age of ten days. The schedule may be rapidly increased so that at the end of the first month he is out the greater part of the day. During a severe heat wave, the airing should be given in the early morning hours and in the latter part of the afternoon for at midday baby can be made more comfortable indoors. Should the sun be very strong and glaring it is well to shade the baby's eyes.

Sun baths, if given cautiously and intelligently, are very beneficial. All baby's clothes, except the diaper, should be removed and the rest of the body exposed directly to the sun's rays. For the first bath the baby should be exposed for one minute while lying on his back, should then be turned around, and exposed for another minute while lying on his abdomen. Each day a minute more may be added for each side until a maximum of one hour is reached at the end of a month. If this procedure is observed, a severe sunburn will be avoided. Not infrequently an over-enthusiastic mother or nurse produces a very uncomfortable burn by a sudden prolonged exposure. It should be remembered that baby's tender skin is very sensitive to such drastic methods. The blond type of child has a skin which burns and blisters

very readily and therefore especial care must be exercised in such cases to prevent over-exposure. On windy or cold days the sun bath should be omitted. In mild weather "Sun Suits" made especially for this purpose are useful.

A variety of sun lamps are manufactured for winter use in the home, the chief ones being the Quartz and the Carbon-Arc lamps. They radiate ultra-violet light. These should be applied however, only on the advice and under the supervision of the physician. If used haphazardly by the uninstructed nurse or mother, without specific directions, they may prove to be a source of real danger.

Exercise

Baby takes his own exercise by kicking his feet, lifting and lowering his arms, and in trying to raise his head. When crying he expands his chest and brings many muscles into play. It is important that no clothes or blankets restrain his movements and he should be allowed enough space to toss about as much as he desires. Occasionally his position may be changed.

Twice a day for twenty minutes he should be granted complete freedom. With all his clothes removed, place him on a bed and allow him to kick about to his heart's content, then turn him about on his abdomen for a few minutes so that he can exercise other groups of muscles. Routine formulated exercises may be given for a few minutes twice a day by the mother or nurse. These are useful for

his muscular development but have no great advantage over the free unregulated movements.

Sleep

Sleeping and eating with an occasional cry are the chief pastimes of baby during the first few months. Baby should be awakened only for the feedings at regular intervals, keeping the same schedule every day. He will soon develop the habit of awaking at the appointed hours and dozing off soon after his feedings.

Under no circumstances should the pacifier or empty nipple be used to induce sleep. Such a procedure very rapidly becomes a pernicious habit and baby will then not fall asleep without it. Besides, the pacifier is unhygienic and may lead to infection of the mouth as it is almost impossible to keep it continually clean and sterile.

Rocking or shaking the crib or carriage is another method of putting baby to sleep which should be zealously avoided. We have seen the tires on the wheels of cribs and carriages worn down by such a procedure. These varied movements do lull the baby to sleep but they quickly become a fixed habit. He will not sleep without the accustomed movement and the mother or nurse soon becomes transformed into a robot for rocking or shaking purposes. At irregular intervals, day and night, baby will awaken and vociferously demand this particular movement. This method becomes very wearing on mother or nurse, tires and casters, and on the baby himself.

With his hunger satisfied regularly, his body kept dry and comfortable, and with an abundance of fresh air, our baby will usually take sufficient sleep to insure good health.

Not all babies require exactly the same amount of sleep. The new-born usually sleeps about twenty-two hours of the day, a baby at the age of three months about twenty hours, and at six months, from sixteen to eighteen hours. Just as older children and adults vary in this respect so do infants, though to a less extent. Those who quickly fall into a deep slumber need less than those whose profoundest sleep occurs later. We have seen mothers unnecessarily worried because their baby did not take as much sleep as others of their acquaintance.

Under no circumstances should baby sleep in the same bed with the mother or nurse or any member of the household. Such a procedure is fraught with danger from many angles. If the child sleeps with the mother it leads to frequent irregular breast feedings and to persistent over-protection. Even the baby's life may be in jeopardy as smothering or crushing has been known to result.

When baby is put to bed for the night, see that he is dry and comfortable, the air in the room fresh and cool. Turn out the light and leave the nursery. He will soon learn to fall asleep alone in the darkened room. The habit of frequently tip-toeing into the nursery to see what baby is doing should be tabooed. It is surprising how many otherwise intelligent mothers persist in this wholly unnecessary procedure. It interferes not only with the baby's, but

with the entire household's, routine. Over-anxiety about the child is almost as harmful as neglect.

If all these suggestions are carefully followed the normal healthy baby will enjoy sound sleep. If he does not, there may be some underlying cause such as illness or improper feeding and a physician should be consulted.

Summer Vacation

The question of selecting the best summer resort for the baby is one that frequently perplexes the mother who lives in a large city. Will he thrive better at the mountains or at the seashore?

The important consideration is to escape the heat and impure air of the city. The advantages offered by the seashore are the greater facilities for exposure to sunshine, the cool breezes and usually the convenience of being near a large city in case any sudden emergency arises. The benefits offered by the mountains are the change of altitude and with it a more complete change of air which has a bracing and invigorating influence; an opportunity for a quieter, more restful existence away from congested streets.

The weight of evidence does not point very strongly to either choice. The differences are not sufficient to warrant any definite stand. Under such circumstances the convenience of the parents should be the deciding factor. If however, the choice is immaterial to them, we would suggest that the seashore be given first trial. If the infant thrives on the

sea coast he should be taken there again the following summer. In the event of his failure to progress normally the mountains should be the choice for the following year.

II

BREAST FEEDING

Breast Milk vs Cow's Milk—Nursing Schedule—Diet and Hygiene of Nursing Mothers—Insufficient Nourishment for Baby—Supplementary Feedings—Weaning—Vomiting—Constipation—Diarrhea—Colic—Normal Stools—Additional Food for the First Year—Cod Liver Oil—Viosterol—Cereal—Zwieback—Egg—Vegetables—Desserts.

THREE are many methods and systems of feeding babies. Almost every pediatrician develops his own general plan of approach. Usually his students and disciples adopt the same principles.

Nearly every week finds a new and "superior" baby food on the market. Its merits are depicted in fine flowing phrases, and beautiful photographs of radiant, plump infants are shown implying presumably that they owe their perfect health to the food. The advertisements are made most alluring.

However, the intelligent mother must not be deceived. Notwithstanding all the newer methods and all the readily prepared foods that captivate the young mother, she must realize first and foremost that the ideal food for the baby is breast milk. This is no moot question. All the recognized authorities on child care agree. The validity of this claim is substantiated by proven scientific facts. Breast-fed infants are stronger, less susceptible to stomach and intestinal disorders as well as to infectious diseases. Their nutrition is unquestionably better. Statistics

show that the mortality among breast fed babies is much lower than among those artificially fed.

Breast milk contains all the ingredients needed for baby's growth in the most digestible form: protein, sugar, fat, salts, water and vitamins. This food comes directly from the source of supply so that there is no danger from contamination by intermediary hands and utensils. There is no possibility of exposure in an unclean environment. It does not have to be bottled and shipped over railway routes and delivered in open wagons. It is nature's gift to the new-born child. Do not deprive him of this heritage. Mother should make every effort to provide her baby with this most perfect of foods. If this is not possible for the entire nursing period, at least an endeavor should be made to lay down a strong foundation with breast milk for the first few months.

Nursing

During the first two or three days of baby's life, but little milk is formed in the mother's breast. The child is allowed to nurse for a few minutes five times a day in order to stimulate the secretion of milk which usually becomes markedly increased on the third or fourth day. Until then a small amount of nourishment and fluid may be supplied by giving one or two ounces of a ten per cent solution of sugar water (an ounce of granulated sugar to ten ounces of water) every four hours.

After the third day the baby should be nursed

every three hours during the day and every four hours at night; seven feedings in all. The following schedule is suggested: 6:00 A. M.—9:00 A. M.—12:00 N.—3:00 P. M.—6:00 P. M.—10:00 P. M.—2:00 A. M. At the age of four weeks the 2:00 A. M. feeding may be omitted, allowing six feedings in the twenty-four hours.

In the case of large robust infants whose birth weight is eight pounds or over, a four hour interval may be tried from the start according to the following schedule: 6:00 A. M.—10:00 A. M.—2:00 P. M.—6:00 P. M.—10:00 P. M.—2:00 A. M. At the age of four weeks the 2:00 A. M. feeding may be omitted leaving five nursings in twenty-four hours.

Regularity of nursing should be strictly observed. The time intervals should not be gaged haphazardly. The clock should be the guide.

There has been a growing tendency to lengthen the intervals for all babies from the very outset. While this is a distinct advantage for the mother we feel it is not for the best interest of every baby. Especially is this true of the less robust children who require more frequent feedings than is usually prescribed. At the age of five months the four hour interval may be started for the average normal infant.

Baby should be kept at the breast for ten to fifteen minutes at each nursing. If longer time is allowed he will soon form poor nursing habits, dawdling, now sleeping, now nursing, biting the nipples and making himself generally unpleasant. After each nursing he should be held against the mother's

shoulder in an upright position for a minute or two so that any swallowed air may be expelled.

Feedings should be at alternate breasts. At each feeding, the child should nurse at one breast only, completely emptying it. This allows a six hour period of rest for each breast in which to secrete sufficient milk and allow the nipples to recover from the surface maceration incident to the sucking. The nipples should be carefully washed with boiled water before and after each feeding. They should be protected from contact with the clothing by covering them with sterile gauze. If a nipple becomes very tender and painful, which is sometimes due to a crack or fissure, it should be covered with a nipple shield at nursing time which practice may be continued for a few days. Zinc ointment may be applied to the affected surface.

The diet and hygiene of the mother play an important role in bringing about the proper secretion of good breast milk. The diet should include three regular meals a day, the portions increased to about one and one-half times the usual amount taken. If for instance, the mother is accustomed to eat one slice of bread and butter for each meal, this should be increased to one and one-half during the nursing period, etc. The diet should be a well balanced one including whole wheat bread and cereals, eggs, meat, green and leafy vegetables and fruit. About three glasses of milk or cocoa should also be included. It is unnecessary to drink as much fluid as is often taken. The mother may eat any food that does not ordinarily upset her digestion. The following is a type of diet list suitable for the nursing mother.

BREAKFAST

Fruit, Choose one:

- 1 large orange
- 3 tablespoons applesauce
- 6 cooked prunes
- ½ grapefruit
- 1 baked apple

Cereal, 1 cup: Take 4 teaspoons of any whole wheat cereal, 8 ounces of milk and 4 teaspoons of sugar. Cook them for 40 minutes in a double boiler.

Cocoa, 1 cup: Use 1 cup of milk, 2 teaspoons of sugar and 2 teaspoons of cocoa.

Bread, 3 slices $\frac{1}{4}$ inch thick

Butter, 4 teaspoons

DINNER

Choice of

- 1 cup of vegetable soup or
- 4 extra tablespoons of vegetables

Meat or fish 4 level tablespoons

Green vegetables: 6 tablespoons

Choice of:

- Spinach
- Green peas
- Carrots
- String beans
- Beets

Potato, 2 medium

Bread, 3 slices

Butter, 4 teaspoons

Dessert, Choose one:

- 2 pieces of fruit
- 6 tablespoons stewed fruit
- 6 tablespoons pudding

Milk, 1 cup

NOTE: The milk and bread and butter may be given at three o'clock instead of at dinner. Also an extra piece of fruit.

SUPPER

Egg, 2
Bread, 3 slices
Butter, 4 teaspoons
Cream cheese, 1 heaping tablespoon
Jelly, 2 tablespoons
Cereal, 1 cup
Dessert, Choose one:
 2 pieces fruit
 6 tablespoons stewed fruit
 6 tablespoons pudding
Cocoa, 1 cup

Many nursing mothers eat entirely too much: often two or three times their usual portions. This excess food does not produce more or better milk as the breasts have a maximum beyond which they do not function. It is stored as superfluous fat increasing the weight of the mother unnecessarily. Nursing mothers sometimes bewail this uncomfortable increase in *avoirdupois* and blame it on the nursing function. This is unjustifiable as it is possible for the mother to keep her weight within bounds and at the same time furnish enough nourishing milk.

There is rather a widespread notion that breast milk is formed solely from the milk the mother drinks, and that it flows into the breasts as such. On this assumption many mothers take unduly large quantities of milk. This idea is of course entirely incorrect. All the food eaten is digested in the stomach and intestine and then passes into the blood stream in the form of simpler substances, the end products of digestion. The arteries carry the blood to the various organs. Each organ takes out its own requirements from the blood stream and develops its special contribution to the body, whether it be in the form of movements as in the muscle tissues

or in the form of milk as in the mother's breast. It is clear then that breast milk is derived from the general diet and not from milk alone.

The nursing mother should observe other general rules of healthful living including those relating to daily exercise and fresh air, bathing, sufficient relaxation and sleep. These factors are undoubtedly conducive to better milk production. This régime sometimes entails considerable sacrifice for the parents in giving up social functions which involve late hours. It is an investment in good health for the baby, which will more than compensate for the temporary self-denial.

The emotional life of the mother undoubtedly affects the quality of the breast milk. The nursing mother should be guarded against sudden shocks and excitement. Her environment should be made as free from emotional strain as possible.

The onset of menstruation does not mean that nursing should be discontinued. The breast milk may be temporarily of poorer quality but it soon returns to normal. A bottle feeding of one or two ounces of sweetened weak tea may be given after each nursing during this time. If in spite of this addition baby seems hungry and distressed the physician should be consulted regarding supplementary feedings for a few days.

During a severe acute illness of the mother, nursing should be discontinued. The breasts may be pumped two or three times a day so that the milk production will not be permanently lost. If the mother has an ordinary common cold she may continue to nurse the baby, protecting him as far as

possible by wearing a band of gauze about her mouth and nose.

In the event of a protracted chronic disease as active tuberculosis, nephritis, certain forms of blood disease or epilepsy, the baby should not be nursed. The mother's physician would undoubtedly recommend its discontinuance under such circumstances.

Although we would like to feel that every mother could, if she so desired, nurse her baby, we know that this is not the case. Women do vary constitutionally in their ability to develop an adequate supply of breast milk and some fail in spite of all sincere efforts.

An inadequate supply of breast milk will soon be reflected in the appearance and behavior of the baby. He will be irritable and restless, crying frequently. His sleep will be disturbed and he will no longer display his usual playfulness. He may become pale and flabby. The scanty supply of milk will often cause the baby to nurse for a long time, forty or fifty minutes, in a vain attempt to become satisfied. Occasionally he will seem disgusted after the first minute and refuse to remain at the breast longer. The most certain method of determining whether the breast milk is sufficient is by weighing the baby before and after each feeding and continuing this procedure over a period of twenty-four to forty-eight hours. This should be done if the weekly weight does not show a regular gain of four to six ounces.

If the breast milk is found to be insufficient the most satisfactory procedure is to offer an additional bottle feeding after each nursing. It is inadvisable

to eliminate breast feedings entirely as long as there is some milk secretion. Even a small quantity of breast milk will benefit the baby. The stimulation of the breast by regular nursing may in time increase the supply. It is therefore better to use the supplemental feedings rather than to substitute bottle feedings for some of the nursings. During the last two months of lactation, however, the latter procedure of alternating breast and bottle feedings may be followed.

Nursing should not be stopped at the first signs of what may seem to be a digestive disorder. The infant may scream as if suffering from severe colic and the mother may be inclined to believe her milk is harmful for the child. The disturbance may however be due to nothing else than hunger.

If any infection develops in the nursing baby, even if it be merely a common cold, symptoms of a digestive disorder, as vomiting, diarrhea and abdominal pain, sometimes appear. The breast milk is frequently considered to be the cause of this digestive upset, whereas the cause is really the infection. When the infection clears up, the stomach and intestinal symptoms often disappear. Under such circumstances it would, of course, be most unwise to terminate breast feeding. The important precaution to bear in mind is to guard the baby against any infection.

It is quite impossible to judge the quality of the breast milk by its appearance. Very often it looks watery and bluish and yet it is perfectly adequate for the baby's nutrition. The usual analysis of breast milk is of little value. To obtain any kind of

satisfactory information regarding the constituents of the milk a portion of all the breast milk secreted in twenty-four hours should be obtained for analysis. The importance of the results are not worth the trouble and expense. Only in exceptional instances on the recommendation of the physician is it advisable to have such an analysis made. The best guide as to the quality and quantity of the breast milk is the general health, appearance, and growth of the baby.

Regurgitation or "spitting up" and vomiting are common occurrences in otherwise normal breast fed babies. These symptoms often alarm the young mother unnecessarily. If the child is gaining weight regularly and thriving, the vomiting has very little significance. It is of course inconvenient and annoying especially to the one who launders baby's clothes.

The slight spitting up after feeding may be disregarded entirely. If vomiting comes on directly after nursing, it may be due to over-feeding. The nursing period should be shortened and the nursing should be occasionally interrupted so that the milk is not taken too rapidly and an opportunity is given to expel gas from the stomach.

Another possible cause of vomiting is a breast milk too rich in fat. It is sometimes helpful to dilute the breast milk by giving an ounce of boiled water, weak tea, or barley water a few minutes before each nursing. The intervals between feedings may be increased.

If vomiting persists in spite of these measures and especially if the baby does not gain in weight a physician should be consulted. A certain type of

projectile vomiting, known as pyloric stenosis, is due to an obstruction at the exit (pylorus) of the stomach and requires careful medical supervision. This is fortunately a comparatively rare condition.

Constipation in the baby often worries the mother unduly. We have seen normal healthy infants whose bowels moved but once in two or three days. Milk has very little residue and is well absorbed. If the baby seems uncomfortable and fretful however, because of the constipation, measures should be taken to relieve the condition. If necessary the mother's bowels should first be regulated. Orange juice, beginning with five drops and increasing five drops every day until one ounce is reached, may be given the baby one half hour before a morning feeding. If these measures afford no relief, one to two teaspoonfuls of milk of magnesia may be given every other day.

There is considerable variation in the character and number of stools of normal babies. The usual average stool has an orange yellow color and is of a soft, pasty consistency. Ordinarily the baby has one to three movements a day. Some babies have six or seven stools a day. A few of these movements may be very small, at times, just a stain on the diaper. Other stools may be of loose consistency with a greenish tinge. The young mother is frequently unnecessarily alarmed about the slight variations of the color and consistency. She scrutinizes each stool with a critical eye for minute changes. She must realize that the most important consideration is not the stool but the baby. If the child is gaining five to six ounces each week and shows every

indication of good health and contentment, the mother need have no fear regarding the character of the stool.

If a real diarrhea develops with the passage of frequent watery stools, the breast milk should be stopped for twenty-four hours. Fluids should be given to the baby in the form of weak tea, barley, or plain boiled water. When breast feeding is resumed the following day the nursing period should be short, about five minutes each time. As the child improves, this is gradually increased to the regular schedule. During the time that nursings are omitted the breast should be emptied with a pump three times a day to prevent any caking or discomfort.

Occasional attacks of colic occur in nursing babies. They are usually due to the presence of considerable gas in the bowels. The child cries intensely and draws his legs up and down. The crying persists even though he is held in the mother's arms. The abdomen is distended and hard. The condition may usually be relieved by an enema of five to ten ounces of tepid water to which has been added a quarter of a teaspoonful of bicarbonate of soda. If no improvement follows a physician should be called.

Weaning

Weaning should not, under ordinary circumstances, be suddenly established. As early as the fourth or fifth month one bottle a day may be substituted for a breast feeding. In this way the baby becomes accustomed to the rubber nipple, simplifying the problem later on. At the same time mother

is given an opportunity for more recreation or rest. In the preparation of the bottle for the nursing baby, the general principles and methods of artificial feeding should be followed. These will be considered later.

When the baby is about nine months, a second bottle may be substituted for breast feeding and in the course of the next six weeks, weaning may be completed. This can be done by replacing a breast feeding by a bottle every two weeks. In this way baby will usually be completely weaned at nine or ten months. However, some mothers are well able to breast feed successfully until the child is a year old but it should never be continued longer than one year.

A word of caution must be given regarding the baby's first experience with cow's milk. In rare instances an infant cannot tolerate the protein of such milk and will become seriously ill from it. This is called an allergic reaction. For this reason it is advisable to give just two or three drops of milk on the first occasion, following it with a regular breast feeding and from then on the usual amount may be given. If however, the baby does develop symptoms, a physician should be consulted.

Occasionally it becomes necessary to wean baby abruptly. If the mother becomes seriously ill, if the milk suddenly disappears, or if pregnancy ensues, such a procedure may be imperative. In this event baby sometimes refuses to take the bottle feedings. Even when baby is weaned gradually this problem may arise. A great deal of patience and perseverance on the part of the mother or nurse is required.

If the breast is withheld and no other food or water is offered, baby will usually surrender before the end of two days. After he once takes his first bottle feeding, the rest offer no great difficulty. In rare, obstinate cases it is necessary to engage a trained nurse for a few days to take complete charge of the situation. During this period it is best that baby does not see the mother.

The diet of the infant whether breast fed or bottle fed, should, in the course of the first year, include fruit juice, cod liver oil, cereals, crackers, zwieback, vegetables, egg, custards, stewed fruit and puddings.

Orange juice may be started at the age of three months, beginning with five drops and increasing by four or five drops each day until a teaspoonful is reached. After that, increase by one-half teaspoonful every few days until the juice of one orange is given. If there is a tendency to constipation, orange juice may be given as early as one month.

During the winter when there is but little ultra-violet radiation from the sun, rickets is more prevalent than during the rest of the year. For its prevention cod liver oil should be regularly given. Starting at the age of one month with $\frac{1}{4}$ of a teaspoonful twice a day it should be rapidly increased until baby receives about two teaspoonsfuls twice a day at the age of three months. This quantity should be continued all through the winter months unless changed by the baby's physician due to special indications.

If the infant cannot tolerate cod liver oil as manifested in persistent vomiting after its ingestion or if it is vigorously refused, a substitute may be found

in Viosterol. This preparation is not a concentrated cod liver oil nor is it made from cod liver oil as so many mothers believe. It is a solution of a substance called ergosterol which has been irradiated with ultra-violet rays. It contains Vitamine D which is the active factor in the prevention of rickets. At one month 5 or 6 drops (Viosterol 250D) may be given three times a day. The amount should thereafter be regulated by the physician. The appearance of any signs or symptoms of rickets will of course guide him in this regard. The advantages of Viosterol are its easy administration and the fact that it does not stain the clothes. Except for Vitamine D it has practically no nutritive or caloric value. There has, moreover, been some experimental evidence to show that it may be harmful and cause calcification of blood vessels if taken over a long period or in large amounts. Its administration should be closely supervised.

We prefer the use of cod liver oil whenever possible. It contains Vitamine A as well as Vitamine D and adds to the caloric intake (1 teaspoonful = 30 calories). The flavored preparations of cod liver oil may be tried if baby refuses the plain oil.

During the summer months when the baby is outdoors most of the day under the natural ultra-violet rays, it is unnecessary to give him cod liver oil or Viosterol.

At the age of four months, cooked cereals may be added to the diet of the baby. The whole wheat grains are preferable. A good method of preparing the cereal is by cooking it in boiling water over the open flame for ten minutes and then in a double

boiler for one-half hour. One tablespoonful of the cereal may be used in 7 ounces of water. A pinch of salt is added while cooking. Two ounces of milk and one teaspoonful of granulated sugar are added before serving. At the first feeding only one teaspoonful should be given. The reason for this is to minimize any digestive disturbance that may arise if the baby's constitution cannot tolerate it. Each day the quantity is increased by one or two teaspoons until the entire amount is taken. It should be given before one of the morning nursings.

If the baby shows a tendency to take only small quantities of food, if its appetite is poor, or if it vomits readily after feeding, a more suitable way of preparing cereal is suggested. This is the method of concentrated feeding, the purpose of which is to supply a large amount of caloric value in a small quantity of food. The cereal is cooked in milk instead of water and sugar is added while cooking in the following proportions to make up one feeding:

Cereal	$2\frac{1}{3}$	level teaspoonfuls
Milk	4	ounces
Sugar (granulated)	2	level teaspoonfuls

At six or seven months, cooked vegetables or vegetable broths may be added to the diet. Vegetables should be prepared by cooking only long enough to make them soft and in as little water as possible. The residual water after cooking should be poured over the vegetables and used, as it contains many valuable salts. At first the vegetables should be put through a strainer, later through the ricer. They may be seasoned with a little salt and served with butter, milk or flour. Beginning with a

teaspoonful the quantity may be rapidly increased until two or three tablespoonfuls are given, preferably in the afternoon about one P. M.

The following are a few suitable recipes arranged in portions to equal 67 calories or 100 Nem:*

FOR YOUNGER INFANTS

Spinach or Carrots	3 level tablespoonfuls add 1½ level teaspoons of butter
Peas add	2 level tablespoonfuls
Butter	1 level teaspoonful
Flour and	¾ level teaspoonful
Milk	½ of an ounce
Potatoes and Boiled milk and Butter	2 level tablespoonfuls (Baked and mashed) 1 ounce 1½ level teaspoons

FOR OLDER INFANTS

Beets or Cauliflower	3 level tablespoonfuls add 1½ level teaspoons of butter
Corn	3 level tablespoonfuls Add 1 level teaspoonful of butter
String beans or Squash	3 level tablespoonfuls add 1⅓ level teaspoons of butter

* Nem is a unit of food value equal to one cubic centimeter of milk. The explanation of this unit is given on page 89.

Tomatoes	$3\frac{1}{3}$ level tablespoonfuls
Bread	$\frac{1}{3}$ of a slice $\frac{1}{2}$ inch thick
Butter	1 level teaspoonful
Sugar	$\frac{1}{2}$ level teaspoonful

Break the bread into small pieces and add it, with the butter and the sugar, to the tomatoes, then heat.

Cream of Pea Soup

Peas	1 level teaspoonful
Milk	1 ounce
Flour	$\frac{1}{2}$ level teaspoonful
Butter	1 level tablespoonful

Make a cream sauce of the butter, flour and milk; add the peas; season with salt.

Cream of Corn Soup

Corn	$\frac{2}{3}$ of level tablespoonful
Milk	$1\frac{1}{3}$ ounces
Flour	$\frac{1}{2}$ level teaspoonful
Butter	$\frac{3}{4}$ level teaspoonful

Make a cream sauce of the butter, flour and milk; add the corn; season with salt.

When several teeth have made their appearance the baby may be given a cracker, zwieback, lady finger, or a piece of stale bread once a day.

At the age of nine months, an egg should be added to the baby's diet. It may be prepared soft boiled for three minutes or coddled. It is especially important to give but one drop of the white of the egg on the first occasion as intolerance to this substance is not very uncommon. If no ill effects, as vomiting, fever or rash follow its first use, the quantity may be rapidly increased so that in a week a whole egg is given. The yolk of egg is especially rich in vitamines. It is important to know that the egg yolk contains $\frac{4}{5}$ of the food value of the whole egg. It is the white portion that is most frequently

responsible for any idiosyncrasy. If then there is any feeding difficulty, the white portion can be omitted without great loss.

Custards, junket, jello puddings and stewed fruit may gradually be included in the dietary after the tenth month. Following are several useful recipes for baby's dessert calculated for one to three portions. Each portion is equivalent to about 67 calories or 100 Nem.

Baked Custard

Milk	7 ounces
Sugar	4 level teaspoonfuls
Egg	1

Mix milk, sugar, a few drops of vanilla and a pinch of salt. Bring to a boil. Turn out flame. Beat in the mixed yellow and white of one egg. Divide into 3 portions. Sprinkle with cinnamon. Set in pan of cold water. Bake about 15 minutes in a slow oven until firm.

Custard Cornstarch Pudding

Milk	7 ounces
Sugar	4 level teaspoonfuls
Cornstarch	2 level teaspoonfuls
Egg yolk	1

Make a paste of cornstarch and mix with milk and sugar. Add a pinch of salt. Bring to a boil, stirring constantly. Turn out flame. Beat yellow of one egg, stir in, add a few drops of vanilla. Divide into 3 portions and set aside to cool.

Chocolate Pudding

Milk	7½ ounces
Sugar	4 level teaspoonfuls
Cornstarch	2 level teaspoonfuls
Chocolate	1 level teaspoonful
Water	1 tablespoonful

Make a paste of cornstarch, mix with milk, sugar, vanilla and a pinch of salt. Bring to a boil, stirring constantly. Turn out the flame. Dissolve the chocolate in the hot water and stir into the mixture. Divide into 3 portions and set aside to cool.

CHILD CARE TODAY

Rice or Tapioca Cream

Milk	7 ounces
Sugar	4 level teaspoonfuls
Tapioca or rice	2 level teaspoonfuls
$\frac{1}{2}$ Egg (separated)	

Cook the rice or tapioca, $\frac{1}{2}$ the yellow of an egg, sugar, milk, and a pinch of salt, while stirring until slightly thick. Add the beaten $\frac{1}{2}$ of egg white and flavor with vanilla. Divide into 3 portions; set aside to cool.

Stewed Fruit

Apricots, Peaches, Prunes, or Apples—Stewed in a small amount of water and strained.

Fruit	1 cupful
Sugar	2 level tablespoonfuls

Divide into 3 portions.

Jello

Any flavor. $2\frac{1}{2}$ ounces per portion. Not to be given more than twice a week. One portion contains only 17 calories or 25 nem.

Junket

Vanilla or chocolate. $2\frac{1}{2}$ ounces per portion.

Banana

Banana	$\frac{1}{2}$ ripe (mashed)
Sugar	2 level teaspoonfuls
Milk	$1\frac{1}{2}$ ounces

III

BOTTLE FEEDING

Cow's Milk vs Proprietary Foods—Sanitary Conditions of Cow Barns—Certified Milk—Grade A Milk—Care of Milk—Boiling—Care of Frozen Milk—Equipment and Preparation of Formulas—Evaporated Milk—Condensed Milk—Dried Milk Powders—Lactic Acid Milk Feedings—High Fat Feedings—Concentrated Feedings—Water Between Meals—Formulas—Symptoms of Insufficient Feeding—Of Excessive Feeding—Babies' Food Requirements—The "Nem"—Orange Juice and Tomato Juice—Additional Food—Schedule of Feeding During First Year.

COw's milk is the best available substitute for breast feeding. It is not, by any means, the perfect food for baby for it is really intended for the calf. Cow's milk is, however, far superior to any of the proprietary infant foods so widely advertised. These should never be employed as the chief supply of baby's nourishment. If used at all they should merely be added to fresh cow's milk mixture to increase the food value. They are in most instances entirely unnecessary, as this result may be obtained more simply and cheaply by adding sufficient sugar to the formula.

Goat's milk may be used if cow's milk is not obtainable, but it has no special advantages.

In the feeding of our baby with cow's milk, careful attention must be given to a number of details. These relate to the selection of the milk, its care in the home, the sterilization of bottles and nipples and the preparation of the formula.

We have previously discussed the importance of the health and hygienic care of the mother. It is almost equally important that cows, used to supply infants' food, should live under appropriate hygienic conditions. It is essential that the bottled milk be obtained from clean healthy and well nourished cows. They should be free from tuberculosis and other diseases which can be demonstrated by regular testing.

The barn should be kept clean and the cows carefully groomed before milking time. The hands of the milker should be washed before touching the cow's udders. A clean duster worn over the working clothes of the milker should be a routine procedure. The milking pails must be kept scrupulously clean and protected from falling particles of dirt. After collecting the milk it should be quickly cooled to about 45° F., and then poured into sterilized bottles which should then be closed.

All these precautions are necessary if we wish to guard the baby against serious intestinal disorders due to milk contaminated with bacteria. Milk is a very delicious and nourishing food for germs as well as children. If given a comfortable warm temperature these germs increase tremendously. Many of the bacteria are harmless. Some cause the souring of milk only. At times, however, others are found which may cause serious diseases as typhoid fever, septic sore throat, scarlet fever, diphtheria, tuberculosis and gastro-enteritis. Violent epidemics have been traced to contaminated milk.

It is of course impossible to keep the milk entirely free from bacteria. With proper care in

handling the milk, their number and character may be kept within the limits that ordinarily have no harmful effects. Milk which is produced under special medical supervision and conforms to the highest standards is sold as "Certified" milk. This is always shipped in bottles in a raw state.

Grade A milk is also produced under hygienic conditions. Before delivery it is pasteurized. This process consists of heating the milk to 150° F. for one-half hour. While the germs are killed, any spores that may be present are not destroyed by this method. Certified and Grade A milk are suitable for infant feeding. Grade B milk or loose milk should never be used.

Milk that is to be used for baby's food, which is received fresh from the cow should first be strained through sterile absorbent cotton, or two or three layers of sterile gauze. It should then be rapidly cooled to 50° F. and carefully protected from contamination until used.

Herd milk, that is, milk taken from several cows and mixed, is much preferable to that from a single cow. There is much less likelihood of variations in quality from day to day.

Care of Milk in the Home

As milk is so readily contaminated it is necessary to employ every safeguard in the home. All utensils such as cups, spoons, pans, etc., that come in contact with the milk should be sterilized by boiling.

Milk should always be kept tightly closed in the

ice box or refrigerator. If allowed to remain exposed to the air or in a warm place the germs rapidly multiply and render it unfit for the baby's food.

All milk used for the infant should be boiled in the home. Certified milk is under ordinary circumstances safe enough in the raw state. However, epidemic diseases have in rare instances occurred even from milk which has been so carefully supervised.

The simplest and safest method of killing the bacteria is by boiling. This may be done after the milk for the entire day has been prepared, and poured into the feeding bottles. The latter may then be placed in actively boiling water for fifteen minutes. The milk is then allowed to cool rapidly by putting the bottles, after but a few minutes in the air, into cold water for fifteen to twenty minutes. After the milk has been cooled, the bottles may then be placed in the ice box until needed. Pyrex glass bottles may be placed directly from the boiling water into the cold water as they do not break on account of sudden changes of temperature. If the milk is allowed to cool slowly in the air or refrigerator, some of the resistant spores may germinate and contaminate the milk.

The boiling of the milk necessary to safeguard the child from any possible infection has one disadvantage. Vitamine C is diminished and may be destroyed if the boiling process is continued too long. This vitamine is an important substance for the baby. If absent from his diet, scurvy, a very distressing disease of infancy, may develop. Fortunately this deficiency may easily be supplied by feeding the

baby orange juice or strained fresh or canned tomato juice. These are rich in Vitamine C and are usually readily taken by baby. One of these should be given if boiled milk is used. The quantity and the method of giving these substances will be discussed later.

Pasteurization of milk before delivery, the most common commercial method of treatment, does not insure absolute safety. It must be remembered that after pasteurization the milk may become contaminated, and if by chance the refrigeration during transit is imperfect it will soon be swarming with germs. Pasteurization does not destroy any spores. Under unfavorable conditions these may develop into harmful bacteria. For complete protection of the baby it is best to boil the milk in the home.

During the winter the problem of handling frozen milk sometimes arises. It should first be thawed by immersing the whole bottle in a receptacle containing warm water. When fluid, the milk should be boiled. The average baby is not affected by frozen milk treated in this way. Occasionally however, a severe stomach and intestinal disturbance may follow its use. For the susceptible child it is best to use a dry milk powder if the milk arrives in a frozen state.

Bottles, Nipples and Other Utensils

As soon as it has been decided to place the baby on bottle feedings, a routine systematic method of preparing the milk should be followed. One person whether it be the mother or nurse should undertake

this daily task. The feedings for twenty-four hours should be made up at the same time each morning. It is well to keep all the equipment together in one place. This equipment should include:

1. Feeding bottles	7. Receptacle for boiling water in which the prepared milk
2. Rubber nipples	bottles may be placed for
3. A glass covered jar for nip- ples	sterilization
4. 12 ounce graduate or meas- uring glass	8. Tablespoon
5. Pitcher	9. Bottle brush
6. Medium sized funnel	10. Rubber caps or non-absorb- ent cotton

The most satisfactory feeding bottles are those which can be easily washed. They are cylindrical in shape with wide necks. Those made of pyrex glass are, as previously mentioned, less apt to break with sudden changes of temperature. As many bottles as there are feedings in twenty-four hours should be provided. After each feeding the bottle should be rinsed, then filled with cold water, and set aside with the others. The following morning all the bottles should be emptied, washed with a brush and hot soap suds, rinsed and boiled for fifteen minutes. After they are cooled they are ready to receive the baby's formula. This is prepared in a pitcher which is always kept scrupulously clean. After it is used each day it should be washed with boiling water and soap. The milk mixture is poured into the bottle through a glass or agate funnel. The bottles are then covered with rubber caps or stoppered with non-absorbent cotton. The mixture divided into proper portions in the bottles, is ready for sterilization as previously described. Just before each feeding the bottle taken from the ice box is heated so

that its contents are brought to about body temperature. This may be done by placing the bottle in a receptacle containing hot water at a temperature between 103° to 105° F. In cold weather a flannel bag with a draw string at the upper end may be drawn over the bottle to keep it warm during the feeding.

Nipples

Straight rubber nipples which fit over the necks of the bottles are usually satisfactory. Nipples with globular heads of the "anti-colic" variety are sometimes more readily taken. It is important that the nipples be of the proper size, the smallest for the new-born baby, increasing the size from time to time as the baby grows. Too large a nipple will sometimes cause gagging and vomiting. The size of the hole in the nipple should be inspected and tested. It should be large enough to allow the milk to escape drop by drop when the bottle with nipple attached is held upside down. If it flows in a steady stream, the hole is too large, forcing baby to take his feeding too rapidly. If the milk does not run through at all or if only occasionally a drop appears, the hole is too small. In such a case it may be enlarged with a needle that has been thoroughly heated over a flame.

The new nipple should be boiled for two or three minutes. Directly after it is used it should be washed each time inside and out, with warm water and soap, allowing the water to run through the hole. It should then be placed in boiling water for several minutes after which it is put in a sterilized dry jar

ready for use again. It is advisable to have several nipples on hand.

The Milk Formula

The formula for baby should under ordinary circumstances be ordered by his physician. It should not be taken from the pages of any book, for it is quite impossible to present adequately a series of formulas that will meet the varying requirements of babies at different age levels.

Each baby presents an individual problem. The amount of food needed does not depend alone upon his age. Various other factors such as weight, height, sitting height, and muscular activity must be considered. The physician trained in this field is best fitted to calculate baby's requirements and prescribe the appropriate formula. It is advisable that he be consulted at regular intervals, preferably once a month during the first year. On these occasions, too, a complete physical examination of baby should be made to make certain of his normal progress and to detect any early signs of disease, should they be present. The prompt correction of any abnormal findings will often prove to be of inestimable value in later life. For those mothers who are so situated that no physician familiar with infant feeding is available, as in some outlying districts, formulas will be suggested to meet the needs of the average baby.

Before taking up specific suggestions it might be of interest to discuss some general ideas and principles regarding infant feeding and to describe as

simply as possible various methods of calculating the food requirements.

In recent years the science of infant feeding has become simplified. It has been found that the complicated and elaborate mixtures formerly employed are unnecessary. The vast majority of babies will thrive perfectly on simple formulas made up of fresh whole cow's milk, water and ordinary granulated sugar (cane sugar). If other ingredients, as cereals, are added the result is a formula of increased caloric value. Its real character however, is not changed. A further increase in nutritive value can be likewise obtained by the addition of a larger quantity of sugar, or concentrating the mixture by using less water, or by doing both.

Various kinds of sugar have been used in place of cane sugar. Milk sugar is the sugar present in breast milk. For a long time it was given first place in infant feeding but it has no special advantage for baby's nutrition and is more expensive. Maltose in various forms, "Dextrimaltose," "Malt Soup," "Karo Syrup," has gained a wide popularity. Many mothers wrongly believe these preparations are complete foods. They really consist of just another type of sugar that is substituted for the ordinary variety. There are some infants who seem to find this sugar more palatable and thrive better upon formulas containing it. A number of the preparations such as "Dextrimaltose #3" and "Malt Soup" which contain maltose are more laxative than the other sugars and are consequently useful when there is a tendency to constipation.

In recent years a number of sugars containing

Vitamine B (Vitavose, Bemax, Dextrimaltose with Vitamine B) have been placed on the market and have in some instances been widely advertised. In our experience the benefits in improved appetite and nutrition claimed for them have not usually followed their use. These preparations should be employed only on the advice of the child's physician who can best decide upon the need of additional Vitamine B.

Occasionally an infant does not do well on a simple whole milk mixture. It is only in this exceptional case that one need resort to one of the many substitutes that are suggested. For some unknown reason such a child will sometimes thrive better when a change is made.

Evaporated milk has been used rather extensively. It consists of sterilized milk from which a considerable part of the water has been evaporated so that it is double the concentration of plain whole milk. It is sold in cans and is mixed with water and sugar for the baby's feeding. Evaporated milk is at times useful for children who cannot tolerate fresh cow's milk as well as for traveling in foreign countries where one is not certain of the quality of the cow's milk that is available.

Condensed milk is essentially sweetened evaporated milk. It is prepared by adding a larger quantity of cane sugar in the proportion of about six and a half ounces to sixteen ounces of evaporated milk. This is not a satisfactory substitute for fresh cow's milk and should certainly never be used for any extended period. It contains proportionately too little protein and fat to insure proper growth. Babies

brought up on condensed milk may gain rapidly but they are usually flabby and weak.

Dried milk powders have been prepared in various ways, some from whole milk such as Klim, and Mead Johnson's dried milk; others from skimmed or partly skimmed milk such as Dryco and Mammala, and a third group from modified milk such as Lactogen, Similac, S.M.A., and others. The advantage of dry milk powders is the ease of preparation of the baby's mixture. At feeding time the powder is simply mixed in boiled water in certain stipulated proportions. These preparations are especially useful in traveling or when fresh cow's milk is not obtainable. Occasionally, when but one substitute feeding a day is required for the nursing baby, the use of the powder makes the ordering of a daily bottle of milk unnecessary. For the regular routine feeding of children, fresh cow's milk mixtures are preferable.

For those exceptional cases where the babies cannot tolerate or do not thrive on a simple whole milk mixture, it is often worth trying lactic acid milk feedings.

Lactic acid milk has received wide favor in some sections of the country. It is prepared by adding two teaspoonfuls of Lactic acid (U.S.P.) to a quart of boiled whole milk which has completely cooled. The lactic acid is added gradually drop by drop stirring constantly. The result is a mixture of very fine curds. One to two ounces of Karo syrup are usually added. No water is used. The lactic acid is added to make the milk more digestible. There have been many favorable reports from the use of this milk in

the routine feeding of infants. Undoubtedly a large part of the good results obtained is due to the fact that this is a concentrated feeding, no water being added to the mixture.

It was formerly quite common among some pediatricists to use a high fat mixture for infant feeding. In place of whole milk, top milk containing a high percentage of fat was prepared with sugar and water.

The butter-flour-milk mixture is another example of high fat feeding. This is prepared by heating three tablespoonfuls of butter in a pan over a small flame for about four or five minutes until there is no longer any foaming. Five level tablespoonfuls of wheat flour are added and the mixture is heated for another four or five minutes, stirring constantly until it becomes thin and assumes a brown color. To this are added two level tablespoonfuls of granulated sugar and twenty ounces of warm water and the mixture cooked twenty minutes. Ten ounces of whole milk are then added and mixed thoroughly. Finally it is divided into the feeding bottles and placed in the refrigerator. This mixture should be used only on the advice of the child's physician.

The high fat feedings will often cause a rapid, sometimes a phenomenal gain in weight. But a number of babies cannot tolerate such rich feedings. Digestive disturbances are frequently produced with vomiting and abdominal discomfort.

The safest and most reasonable procedure in feeding the normal, healthy infant is, as we have previously mentioned, to use simple mixtures of fresh whole cow's milk, water and sugar.

In recent years we have learned that babies can thrive on formulas containing much less water than was formerly used. In fact we sometimes do not add any water to the mixture at all. When we consider the composition of cow's milk, which is water 87.25%, protein 3.3%, fat 3.7%, milk sugar 5%, ash salts .75%, we see that a very large part of the milk is really water. Why then is additional water added to the mixture in preparing the baby's formula? For a long time a highly diluted mixture was thought essential because protein and salts are found in greater amounts in cow's milk and are more difficult to digest than in breast milk. Breast milk is the natural food for baby, and all milk formulas, it was believed, should be made to approximate its composition which is water 87.70%, protein 1.7%, fat 3.7%, milk sugar 6.7%, salts .20%. While we recognize the fact that cow's milk contains a greater amount of protein than does breast milk, and that it is more difficult to digest, we do not feel it is necessary to use the high dilutions of cow's milk that have been so frequently employed. Many infants can, if necessary, take undiluted milk with sugar.

It is especially important to use little or no water in the formula if we have to deal with an infant that takes but a small quantity of his feedings. By concentrating in this way the nutritional requirements of the baby will be met whereas the amount he is required to take is small. In place of the water more milk is taken. Milk is nourishing, each ounce being equivalent to twenty calories. Water has no actual food or caloric value. It is of course essential

as a solvent and for the maintenance of the body fluids. However, when we offer baby pure undiluted milk, 87% of it is water. Few of us realize that a large proportion of most foods, except those that have been commercially dried, is water. Especially is this true of fluid foods and beverages as milk, broth, tea, coffee, etc.

If we give baby a concentrated feeding and find that he requires more water, we can offer it to him separately between his regular feedings. This additional water is particularly needed during hot weather or when the baby has fever. The practice of giving greatly diluted milk formulas, such as one part of milk to two or three parts of water, as has been sometimes recommended, may not give the baby sufficient nourishment and is entirely unnecessary even during the first weeks. Strange as it may seem, many babies can take undiluted milk with sugar right from the start without showing any evidence of digestive disturbance. Such concentration should be used, however, only when necessary, and only on the advice of the baby's doctor.

For the average new-born baby, a safe procedure is to use a mixture of half whole milk and half water with the addition of eight per cent sugar as follows:

milk 9 ounces

water $8\frac{1}{2}$ ounces

granulated sugar 3 level tablespoonfuls

Divide into 7 feedings, $2\frac{1}{2}$ ounces in each.

After two weeks a formula of $\frac{2}{3}$ milk and $\frac{1}{3}$ water with $5\frac{1}{2}\%$ sugar may be used:

milk $11\frac{1}{2}$ ounces

water 6 ounces

granulated sugar 3 level tablespoonfuls

Divide into 7 feedings, $2\frac{1}{2}$ ounces in each.

This proportion of milk and water can be maintained, the amounts of each increasing as shown in feeding schedule on page 95, until the fifth month when whole milk and sugar may be used without the addition of any water.

Our ideas regarding the use of sugar have changed in recent years. Formerly great care was exercised in limiting its use for infants because of the fear of producing intestinal disturbances, a flabby turgor and a weak constitution. Experience has shown this to be entirely unfounded. If sufficient protein is present in the food (10 to 20%), a considerably larger amount of sugar than is ordinarily used may be added without producing harmful effects. We have frequently included as much as 17% sugar in a formula with good results.

One of the most important parts of infant feeding concerns itself with finding out just how much food each baby requires. If too little is given the child will not grow properly, nor will he gain in weight. His general nutrition will suffer. Irritability and restlessness soon follow.

If too much food is offered there may follow an excessive and undesirable gain in weight. The large deposits of fat often retard normal progress. At times digestive disturbances are produced by this over-feeding.

The problem of determining the food requirements of each baby is best left to the physician

trained in this field. It would be unwise for the mother to depend upon her own calculations even if she undertook the study of the subject. The feeding of the baby is closely related to his general health and progress. At the periodic monthly examination, all phases of the infant's welfare, including his feeding, should be discussed with the physician. Only in this systematic way will the best results for the baby be obtained.

For those mothers and nurses who are especially interested, we will describe as simply as possible the various factors considered and methods used for calculating the food requirements of the baby.

The age of the baby has been used as a guide for this determination but this cannot be relied upon entirely. At the same age one infant may be almost twice the size of another and the food requirements of the larger baby are certainly much greater than those of the smaller.

The weight of the child has frequently been used in calculating the food requirements. About fifty calories per pound of weight is considered the average need for the infant. But this method, too, is open to objection because the child who is considerably below normal weight or who has lost weight due to illness, often requires much more than fifty calories to attain the standard weight. As an example, an undernourished child of seven months weighing twelve pounds needs much more food than a child of three months weighing twelve pounds.

The appetite of the child is helpful in determining his food requirements. There are, however, a

number of infants who will be overfed if allowed to take as much food as they desire.

The activity of the baby plays a large part in its food needs. Some babies are constantly raising their arms and kicking their legs while others are content to lie passively in their cribs with only an occasional outburst of energy. The energetic, bouncing baby requires more food than the inactive, serene child.

One of the more recent and interesting methods of determining the food requirements is the use of a hitherto neglected body measurement, the sitting height: this is the height of the trunk, the distance between the surface of the seat on which the body rests in the sitting position and the top of the head. By placing a horizontal board on the head and having the child sit erect, this measurement is easily taken. Infants, however, who are not able to sit up must be measured in the horizontal position.

The sitting height is directly related to the normal weight of the child and indirectly related to the outside surface of the body. It is the extent of this surface which determines in large part the amount of food needed. The square of the sitting height in centimeters (1 inch = $2\frac{1}{2}$ centimeters) equals the maximum number of units of food required. The unit of food in this system of feeding is not the calorie but is the "Nem," a word which was coined by the noted Austrian physician Von Pirquet who introduced this new system of feeding. A Nem is the nutritive value of a gram of milk (1 gram = $\frac{1}{30}$ ounce). The name "Nem" was taken from the ini-

tials of "Nahrungs Einheit Milch" or "Nutritive Element Milk." All other foods are compared to this milk unit as a standard. This is shown in the following:

- 1 gram of sugar = 6 Nem or 6 grams of milk
- 1 gram of wheat flour = 5 Nem or 5 grams of milk
- 1 gram of butter = 12 Nem or 12 grams of milk
- 1 gram of bread = 4 Nem or 4 grams of milk

The same idea can be expressed by saying that one ounce of sugar is equal to six ounces of milk, etc. In this system one speaks of Nem instead of calories.

A calorie is a heat unit, the large calorie being the amount of heat required to raise the temperature of one liter of water one degree Centigrade. In the caloric system foods are measured by units of heat production. This is open to criticism because many substances, as wood and coal, are rich in calories if burnt in an oven or furnace but have no value for the living being. Even with the ordinary foods as vegetables, parts such as the cellulose are not digested and consequently have no caloric value within the body. The use of a simple food unit like the Nem seems more adequate.

In calculating the formula for an infant according to this system, one takes the sitting height in centimeters and squares it. This gives the maximum number of Nem. But this maximum is seldom needed in childhood. Usually about $\frac{6}{10}$ (6 decinems per square centimeter) of this amount is sufficient for the average baby, $\frac{7}{10}$ (7 decinems per square centimeter) if he is unusually active. As an illustration, suppose a child has a sitting height of 40 centi-

meters, then we have as the square of the sitting height:

$40 \times 40 = 1600$ square centimeters:
therefore the maximum food the child could take
is 1600 Nem.

$\frac{6}{10}$ of 1600 = 960 Nem which is the actual requirement of the average child having a sitting height of 40 centimeters.

960 Nem are equivalent to 960 cubic centimeters (32 ounces) of milk. To simplify our calculations in dividing the mixture we can use an even 900 Nem or the equivalent of 900 cubic centimeters (30 ounces) of milk. We can replace 10 ounces of milk by $1\frac{2}{3}$ ounces of sugar (1 ounce of sugar is equivalent to 6 ounces of milk), leaving 20 ounces of milk for the formula. A mixture of $\frac{2}{3}$ milk and $\frac{1}{3}$ water can be made up as follows:

Milk	20 ounces	600 cc.	600 Nem
Water	10 ounces	300 cc.	0 Nem
Cane sugar	<u>1$\frac{2}{3}$</u> ounces	50 gram....	300 Nem
	30 ounces	900 cc.	900 Nem

The sugar of course is in solution and does not increase the total number of fluid ounces. The total amount may be divided into 5 bottles of 6 ounces each and feedings given every 4 hours.

In passing it is of interest to note that of the $\frac{6}{10}$ of the maximum food intake $\frac{3}{10}$ (3 decinems) is the amount necessary to maintain the body weight at complete rest, $\frac{1}{10}$ is allowed for growth and $\frac{2}{10}$ for activity.

In the formula given above where 900 Nem were calculated to be the requirement, it will be noted that the food contains 900 Nem in 900 grams (30

ounces). This is called a "Sibo" mixture "si" standing for simple and "bo" indicating bovine or cow origin. In a "Sibo" mixture 1 gram equals 1 Nem.

There are other mixtures used in this system of feeding. For the sake of completeness we include the following table which gives their names and composition.

<i>Name of mixture</i>	<i>Milk</i>	<i>Water</i>	<i>Sugar</i>
Sibo 1 gram = 1 Nem	67%	33%	5.5%
Sesquibo 1 gram = 1½ Nem	100%	0	8.5%
Dubo 1 gram = 2 Nem	100%	0	17%

The general rules relating to the time and regularity of feedings which have been discussed in connection with nursing apply to bottle feedings as well. For the first month, 7 feedings a day are required and may be arranged at the following hours: 6:00 A. M.—9:00 A. M.—12:00 N.—3:00 P. M.—6:00 P. M.—10:00 P. M.—2:00 A. M. At the beginning of the second month the 2:00 A. M. feeding may be omitted leaving 6 feedings in 24 hours.

As in breast-fed babies a four hour schedule may be used from the start in those cases where the birth weight is eight pounds or over and the child appears robust. The hours suggested are 6:00 A. M.—10:00 A. M.—2:00 P. M.—6:00 P. M.—10:00 P. M.—2:00 A. M. The 2:00 A. M. feeding may be omitted at four weeks leaving five feedings in 24 hours. For the average baby the four hour schedule may be started about the fifth month.

The importance of the regularity of feedings cannot be stressed too much. Even if the baby is asleep he should always be awakened at the hour scheduled for his feedings. He will soon acquire the habit of awakening at the proper time.

The best position for the baby when he is given his bottle is to have his shoulders and head slightly elevated and the body tilted to the right side. The bottle should be held by the mother or nurse and care taken that the neck of the bottle is always filled. If this is not done, considerable air may be ingested with the formula resulting in much discomfort to the baby.

After each feeding the baby should be lifted and held for a few moments in the upright position against the mother's shoulder in order that he may expel any air swallowed. Dawdling over the bottle should not be permitted. Some infants will start and stop sucking a dozen or more times during a feeding, playing or fretting or cooing in the intervals. The mother or nurse sometimes becomes frantic over the situation. The bottle gets cold in the meantime and must be rewarmed. The best way to handle this problem is to allow baby not more than 20 minutes to finish the bottle. At the end of this period no matter how little of the formula has been taken the bottle should be removed and nothing further given until the next feeding. It is surprising how soon the baby will learn to take his feeding without fussing.

In the case of the bottle-fed baby orange juice should be started earlier than for the nursing baby. At the age of six weeks begin with five drops and

increase four or five drops each day up to a teaspoonful, then increase $\frac{1}{2}$ teaspoon every few days until the juice of one orange is given.

Orange juice is rich in vitamine C. In the absence of this vitamine there is a tendency to develop scurvy. This is a serious disease in infancy, the chief symptoms of which are bleeding gums, very painful, tender, lower extremities and marked restlessness. The disease is cured by the administration of orange juice. One must bear in mind that boiling the milk, partially, sometimes completely, destroys the Vitamine C normally present. The importance of orange juice for the bottle-fed infant is, therefore obvious. Tomato juice is also rich in vitamine C and may be substituted for orange juice if necessary.

Cod liver oil should be taken by the bottle-fed infant during the winter in the way suggested for the nursing baby. The relative merits of cod liver oil and Viosterol have been discussed.

The bottle-fed baby should be allowed the same additional food during the first year as the breast-fed baby. The list is printed below for the sake of convenience. The methods of preparing the foods and numerous recipes have been previously described in connection with breast feeding.

1. Cooked cereal at 4 months
2. Vegetable broths or cooked vegetables at 6 months
3. Crackers, zwieback or stale bread at 7 months
4. Egg at 9 months
5. Custards, junket, jello, puddings and stewed

SCHEDULE OF FEEDING DURING THE FIRST YEAR

AGE (Months)	1	2	3	4	5	6	7	8	9	10	11	12
Whole milk (ounces)	14	16	17	18	16½	18	19	20	18	18	21	21
Water (ounces)	8	7	6	5	3½	2	1	0	0	0	0	0
Cane sugar granulated (level tablespoonfuls)	7	3	3	2	2	2	3	3	3	3	3	3
Total quantity of formula (ounces)	3	3	3	2	2	2	3	3	3	3	3	3
Quantity of formula per feeding (ounces)	21	24	24	20	20	20	18	18	18	18	21	21
Number of bottle feedings	3½	4	4	5	5	5	5	6	6	7	7	7
Interval between feedings (hours)	6	6	6	4	4	4	4	3	3	3	3	3
Cereal (portion)*	3	3	3	1½	1	1	1	1	1	1	1	1
Vegetable (portion)												
Cracker or zwieback (piece)												
Egg												
Dessert												
Total calories	460	500	520	545	585	645	730	810	840	875	900	930
Total Nem	690	750	780	820	875	970	1100	1220	1260	1310	1360	1400

In addition, orange juice beginning at six weeks, cod liver oil at one month as described in the text should be included.

When 3 or 4 semi-solid foods are ordered for the day, two may be given at one feeding, as vegetables and egg or occasionally a bottle feeding may be given in addition to one of the other foods at the same hour.

* Portion refers to a quantity equal to 67 calories or 100 Nem and prepared as directed previously.—See recipes on Page 69.

fruit, gradually added to the diet after the 10th month

On page 95 is a schedule of feeding for the average normal baby at various ages. It is approximate and should be used only if a physician is not available to prescribe the feeding.

During the second year the intervals between feedings as well as the quantity of food at each feeding should be increased. At the age of fifteen months, three meals a day at 8:00 A. M., 1:00 P. M. and 6:00 P. M. should furnish the day's food requirements. The following is a type of diet list suitable for the average normal child between fifteen and eighteen months. The total food value for the day is equal to 1030 calories or 1550 Nem.

BREAKFAST

Fruit, Choose one:

- 1 large orange
- 3 tablespoonfuls applesauce
- 6 cooked prunes
- ½ grapefruit
- 1 baked apple

Cereal, ½ cup: Take 2 teaspoonfuls of farina or any other cereal, 4 ounces of milk and 2 teaspoonfuls of sugar. Cook them for 40 minutes in a double boiler.

Milk, 1 cup

Bread, 1 slice ¼ inch thick

Butter, 1 teaspoonful

DINNER

Choice of

- ½ cup vegetable soup or
- 2 extra tablespoonfuls vegetables

Meat, 2 level tablespoonfuls—scraped lamb chop or chicken

Potato, 1 medium

Green vegetables: 4 tablespoonfuls

Choice of:

Spinach
String beans
Green peas
Carrots
Beets

Bread, 1 slice

Butter, 1 teaspoon

Dessert, Choose one:

1 piece fruit
3 tablespoonfuls stewed fruit
3 tablespoonfuls pudding

Milk, $\frac{1}{2}$ cup

NOTE: The milk and bread and butter may be given at 3 o'clock instead of at dinner.

SUPPER

Egg, 1

Bread, 1 slice

Milk, 1 cup

Dessert, Choose one:

1 piece fruit
3 tablespoonfuls stewed fruit
3 tablespoonfuls pudding

During the winter and spring months, one tablespoonful of cod liver oil should be added each day.

From eighteen months to two years the following is an appropriate diet list for the average normal child. The total food value is equal to about 1132 calories or 1700 Nem.

BREAKFAST

Fruit, Choose one:

1 large orange
3 tablespoonfuls applesauce
6 cooked prunes
 $\frac{1}{2}$ grapefruit
1 baked apple

Cereal, $\frac{1}{2}$ cup: Take 2 teaspoonfuls of farina, or any other cereal, 4 ounces of milk, and 2 teaspoonfuls of sugar. Cook them for 40 minutes in a double boiler.

Milk, 1 cup

Bread, 1 slice $\frac{1}{4}$ inch thick

Butter, 1 teaspoonful

DINNER

Choice of

$\frac{1}{2}$ cup vegetable soup or

2 extra tablespoonfuls vegetables

Meat or Fish, 3 tablespoonfuls: Scraped beef, lamb chop, steak, or chicken; white filet of flounder or halibut, boiled or broiled.

Potato, 1 medium

Green vegetables, 4 tablespoonfuls

Choice of:

Spinach

String beans

Green peas

Carrots

Beets

Bread, 1 slice

Butter, 1 teaspoonful

Dessert, Choose one:

1 piece fruit

3 tablespoonfuls stewed fruit

3 tablespoonfuls pudding

Milk, 1 cup

NOTE: The milk and bread and butter may be given at 3 o'clock instead of at dinner.

SUPPER

Egg, 1

Bread, 1 slice

Butter, 1 teaspoonful

Jelly, 1 tablespoonful

Milk, 1 cup

Dessert, Choose one:

1 piece fruit

3 tablespoonfuls stewed fruit

3 tablespoonfuls pudding

During the winter and spring months one tablespoonful of cod liver oil should be added each day.

IV

GROWTH AND NUTRITION

Fundamental Differences in Body Structure—Weight—Height—Growth of Head—Anterior Fontanelle—Dentition—Standards of Nutrition—“Pelidisi.”

THE marked differences in the growth and development of normal healthy infants are not sufficiently recognized or appreciated. Mothers have long been guided by charts showing average weights and heights for successive ages. Some have spent many sleepless nights worrying over baby's failure to reach a certain weight indicated on the printed tables. Others have wondered why their neighbor's or friend's baby who is the same age as their own, weighs so much more.

We all notice variations in weight, height and general physical make-up in the adults around us, yet in their babies, parents are prone to expect a certain uniformity. The fundamental differences between individuals are present at the very start of life already pre-determined in the germ cells, and continue throughout life. There are various constitutional types, the linear and slender, the broad and stocky, the small-boned and petite, all of which can be noted in infancy. With the proper care and feeding we can bring to fruition the finest possible development for a particular baby, but the child's innate constitution will limit our results.

Weight

The average weight of a boy at birth is seven and a half pounds, that of a girl, seven pounds. This sexual difference in birth-weight may be due to the shorter duration of pregnancy in the case of girls. There are many normal babies whose birth weights are above or below this average.

During the first few days there is a loss of weight which is usually made up by the end of ten days. From then on the rate of gain in weight varies considerably in different babies. During the first six months, except for the first ten days, the usual range is from four to eight ounces a week. At three months, the average baby weighs twelve pounds, at six months, sixteen pounds, at nine months, nineteen pounds, at one year, twenty-one pounds. As has been pointed out, there are many normal, healthy babies that do not conform to average figures. An important indication of good health is a steady, progressive gain in weight even if that gain is only a few ounces a week.

During the second year the gain in weight is at a much slower rate, the average being six pounds for the entire period or about one-half pound a month.

Height

The heights of infants also do not conform to any set standard. To a considerable extent each child's height will depend upon that of one or both parents or upon that of a more remote ancestor. The glands of internal secretion, particularly the

thyroid and the pituitary, undoubtedly play an important role in the determination of height and general body structure. The child's maximum possible height can be reached, however, if we offer him all the advantages of a healthful régime. Average heights are interesting, but for purposes of comparison are of limited value. At birth this average is about 20 inches; at six months 24½ inches; at one year, 28 inches; at two years, 32 inches.

The weights and heights of children are the measurements most frequently taken and discussed. Some of us lose sight of the fact that practically every part of the child's body is undergoing a continuous growth. The head, chest, abdomen, extremities, brain, are all included in the process.

The growth of the head during the first year is especially striking. In that short space of time its circumference increases about four inches, an increase almost as great as occurs during all the remaining years of life. The average circumference of the head at birth is fourteen inches; at six months, seventeen inches, at one year, eighteen inches; at two years, nineteen inches. At birth there is an opening in the bony structure of the head which is of importance. It is located at the top of the head toward the front in the mid-line and is called the anterior fontanelle. This opening permits the skull to become readily accommodated to the rapidly growing brain. It usually remains open for a year and a half to two years. The size remains about the same during the first year of life, then the fontanelle gradually closes. There are variations among normal infants in the time of complete closure.

Rickets may be responsible for a delay in closure. Only very early or late closure of the fontanelle has much significance.

Dentition

The first set of teeth, twenty in number, are all present in the mouth at birth. They are hidden from view by the overlying gum. They continue to grow, and sometime between the fifth and ninth month begin to make their appearance. Usually the two central lower incisors are the first to erupt followed by the four upper central incisors. A total of six teeth is a fair average at the end of the first year. There follows the eruption of the two lower lateral incisors and of the four front double teeth or anterior molars between the twelfth and fifteenth month. The four canine teeth, the upper ones being often referred to as the "eye teeth" and the two lower as the "stomach teeth," usually make their appearance between the eighteenth and the twenty-fourth month. At two years about sixteen to eighteen teeth are present. The remaining teeth of the first or deciduous set erupt during the following four months. Even in perfectly normal babies teeth sometimes do not appear at the schedule time nor in the usual sequence. There are some families in which a late eruption of the teeth is rather a common occurrence. We have seen much unnecessary anxiety produced by delayed dentition in children. In some instances, the eruption of the teeth may be delayed on account of rickets or other long illnesses. In the case of rickets other signs of the disease are

usually present. If there is any doubt about the presence of teeth, an X-ray examination can be resorted to.

Now that we have considered the various aspects of growth, how shall we judge the individual baby's nutrition? Are the weight, height and dentition our only guides? There are other factors often overlooked that make up the complete picture. The condition of the blood, the deposit of fat, the turgor or firmness of the skin and the muscular development should all be considered in the determination of the child's state of nutrition. The physician is of course the one most competent to make this survey. By an examination of the blood he can discover the presence or absence of a secondary anemia. By observation and palpation of the skin and the underlying tissues he can appraise the other factors. With this information and the knowledge of the type or natural build of the child he can judge the nutritional state much more satisfactorily than by measurement of weight and height alone.

For many years attempts have been made to find accurate and precise ways of determining the state of nutrition. At first the weight for a given age was used as a standard. It was soon found that the nutrition of the especially tall or short child could not be fairly estimated in this way. Tables based on certain average weights for heights at the various ages were devised. These did not take into account the type of body structure but were an improvement over the first method. A number of years ago, Von Pirquet, an eminent Austrian physician, found that the rarely used measure, the sitting height, that

is, the height of trunk, presented a very satisfactory means of determining the state of nutrition. He used this measure in estimating the nutrition of hundreds of thousands of individuals with very gratifying results. The sitting height, as we have previously noted, is measured from the surface of the seat, on which the body rests, to the top of the head.

For those of our readers who are interested in nutritional standards and who will not object to a brief reference to mathematical equations we present Von Pirquet's formula. Von Pirquet maintained that the sitting height bears a close relationship to the cube root of the body weight. A cube of which one side is equal to the sitting height, if filled with water, would represent ten times the weight of the human body. This cube could hold ten persons. The cube root of ten times the weight in grams about equals the sitting height in centimeters.

$$\sqrt[3]{10 \text{ weight}} = \text{sitting height} \text{ or } \frac{\sqrt[3]{10 \text{ weight}}}{\text{sitting height}} = 1$$

If the weight is more than usual the ratio will be more than one and vice versa. Children who have considerable fatty tissue equal 1 or more while the thin children are below .9. Von Pirquet coined the word "Pelidisi" to describe the formula and we speak of one child as having a "Pelidisi" of .89, of another of .94, etc. A table of figures has been formulated to make the calculations very simple.*

* Dr. Clemons Pirquet, *An Outline of the Pirquet System of Nutrition.*

V

CARE OF THE PREMATURE INFANT

Definition of Premature Baby—Needs of Premature Baby—Maintenance of Heat—Irrregularity of Breathing—Nourishment—Methods of Feeding—Concentrated Feedings—Hygiene—Prevention of Infection.

A PREMATURE infant is one that is born before its regular nine months period of intrauterine life has elapsed. Such a baby weighs less, and is smaller than the average normal infant. It is his weight, more than any other factor, which determines a premature infant's special requirements. All infants, even those born at full term, that weigh five pounds or less should be treated as premature. If given the proper care and feeding the premature may, before long, overcome his original handicap and grow to a normal robust childhood.

What then are the special needs of the premature? Maintenance of the body heat, adequate nourishment, quiet surroundings and the prevention of infection are the chief requisites.

The body of the premature child may be kept warm by covering him with cotton. For the head a cotton cap may be used.

In the premature there is usually an insufficient production of heat and the temperature of the baby

may fall to much below normal. The mechanism regulating the temperature is not well developed in the premature child, so that if the child is not protected his temperature would drop to that of his environment. This condition of lowered body temperature retards the activity of the various organs of the body and markedly decreases the chances for survival. It is of the utmost importance, therefore, to maintain a uniform normal temperature by artificial means.

There are a number of methods that can be employed to maintain a uniform normal temperature. Some of our large maternity hospitals have special equipment to meet this need. The infants are kept in rooms where the temperature is always between 80 and 85 degrees Fahrenheit. Infection is prevented as far as possible by having separate cubicles for each child. If the infant is not to be accommodated in such a modern, completely equipped institution, it is better to care for the premature at home. Here the crib may be heated with padding and hot water bottles. An electric pad may also be used. Great care must be exercised to protect the baby from accidental burns and from over heating. A most satisfactory arrangement is the premature baby's bed used at the Lying-In Hospital, New York City. Miss Napier has given a very clear description of this crib.

"Constant heat in each crib is maintained in the following manner: A small crib of closely woven wire stands inside the ordinary nursery crib which is lined with cotton quilted padding. The inner crib has a small mattress and is also lined with the pad-

ding. The space between cribs is three inches at the side and five and a half inches at the head and foot. Five hot water bottles are placed in this space, two on each side and one at the foot. The water in these bottles can be as hot as desired as there is no possible chance of the baby coming in contact with them. Thermometers kept in the inner crib register 80 to 85 degrees Fahrenheit. This is regulated by the temperature of the water in the bottles or the removal of some of them. A body temperature of 98 to 100 degrees Fahrenheit has been very constantly maintained by this procedure. Temperatures are taken twice in the twenty-four hours, once during the day and once at night."

Just as the regulation of body temperature in the premature child is inadequate, so may the regulation of his respiration be insufficiently developed. Breathing is frequently irregular. The danger signal is a bluish color which indicates the need for immediate treatment. The inhalation of a mixture of oxygen and carbon dioxide has proven to be very valuable in combating this dangerous condition.

For the premature or weak baby breast milk is essential. Every effort should be made to stimulate the flow of mother's milk. As the premature is often unable to do this by nursing, it is sometimes advisable to have a healthy robust infant nurse at the breast to increase the secretion. Some of the milk is then removed for the premature baby with a breast pump or by gentle pressure. (A very excellent pump is the Asepto-breast pump which has a devise to prevent the milk from running into the rubber bulb. There is also an electric pump which may now be

purchased or rented for the purpose.) This breast milk may be given the baby by bottle.

If the mother is unable to furnish any milk, the service of a wet nurse whose health has been thoroughly investigated, should be secured. In some of the large cities this procedure is now unnecessary, as well organized bureaus for the distribution of breast milk have been established.

The premature is frequently neither able to nurse nor to suck the rubber nipple with sufficient vigor. In such a case the Breck feeder or the Asepto Infant feeder may be used. The feeder consists of a graduated glass tube having a capacity of one or two ounces with a rubber bulb at one end and a small rubber nipple at the other. The nipple is placed in the baby's mouth and intermittent pressure is made on the bulb. This gently forces the milk into baby's mouth requiring little or no sucking movements on his part. Of course the parts of the feeder must be sterilized before use in the same way as are the usual bottles and nipples.

The ordinary medicine dropper is often useful in feeding those infants too weak to suck but who are able to swallow. In extreme weakness where the baby is unable to swallow, milk is given through a catheter. This should, however, only be done by the physician or nurse familiar with the procedure.

Important as is trained medical supervision for the normal, it is doubly so for the premature or weak baby. The amount of milk required, its composition, and the frequency of feeding should be determined by the physician.

As the premature is usually able to take but small

quantities of milk at one time, it is important to offer the feedings at short intervals in order to cover the child's requirements. When the infant is very tiny, from two to three pounds, feedings should be offered every hour. The five-pound baby may be fed every two hours during the day and every three hours at night. After the premature is born no time should be lost in starting the feedings, for he can ill afford to lose any of his weight.

In the feeding of the premature we have found the concentrated feeding most useful. By adding 8.5% sugar to pumped breast milk we increase its nutritional value. Where there is considerable difficulty in getting the baby to take his required amount of breast milk, such concentration will often solve the problem by cutting down the volume. Additional water may be given between feedings if needed.

If it is impossible to obtain any breast milk, one must resort to a cow's milk mixture. The one and one half concentrated mixture or "sesquibo" is very satisfactory. This is prepared by adding 8.5% sugar to whole milk. It is surprising to see how well such concentrated feeding is tolerated by the premature or delicate infant.

As the premature baby is more apt to develop rickets at an early age, cod liver oil should be started about the fifth week, beginning with two drops and increasing two or three drops every day until a teaspoon is reached twice a day. If this is not tolerated, Viostorol may be used as a substitute when ordered by the physician. The latter will also be on the watch for any signs of anemia and will institute appropriate treatment if needed. Pre-

mature infants are more prone to develop anemia than those born at full term.

Tub baths should not be given the premature during the first weeks. Instead cleanse the body with warm sweet oil every other day. As the skin is very delicate and sensitive no soap or water should be used for the buttocks. Gently cleanse them with oil when necessary. Diapers should be changed immediately when wet or soiled. The handling involved in changing the diapers may be lessened by substituting pads of gauze and cotton for them.

The premature infant should have his own room. Only one person, either the mother or nurse, should be permitted to enter and to handle the baby. This should be done as little as possible.

The surroundings should at all times be quiet and restful. Every effort should be made to avoid any unnecessary disturbance so that he can have the maximum amount of rest and sleep.

Under no circumstances should visitors, who may spread harmful bacteria, be allowed. We cannot emphasize too much the importance of preventing infection. The premature infant is much more susceptible to the attacks of bacteria than is the normal child. Even a mild cold may become a great menace.

By a strict adherence to these rules will the premature infant be given the best chance to overcome his early handicap.

When the premature child attains a sufficient degree of strength and resistance the special precautions and care outlined here may be changed gradually to the usual care of the normal child.

VI

THE MENTAL AND EMOTIONAL DEVELOPMENT OF INFANTS

Curiosity—Imitation—Pleasure, Pain—Measurements of Mental Growth—Delay in Talking.

MOST parents look upon infancy chiefly as an important period of physical growth. They watch with eager eyes the weekly gain in weight and the gradual increase in length. The healthy baby's lovely clear complexion is the pride and joy of the household. When the first tooth arrives it is the occasion for much celebration. All these are tangible physical qualities.

Of course parents observe cute tricks which their infants perform; watch with delight how the little hands grasp a toy; hail with rapture the first smile of recognition; take pride when baby sits up for the first time; and exult to hear the first "mama" or "dada." Very few parents realize, however, that these things which they consider tricks are not just accidents at all, but are part of a well ordered mental and emotional growth. This growth is stimulated by a number of inherent impulses and feelings. One of the most important of these is an innate sense of curiosity. Baby wants to know what this world is all about. Hardly has the first month passed when he watches eagerly any large moving

object and becomes acutely aware of loud sounds. Before long his eyes wander about acquainting him with the details of his new surroundings.

From the very beginning he knows the feeling of pleasure and the sensation of pain. He expresses his emotions in no uncertain terms. His loud cry tells the story of discomfort or pain; his contented look, his smiles and cooing tell us of his pleasure and comfort.

Not only is baby interested in his surroundings but he is curious to know all about himself as well. At about three months we find him exploring his little body. What a thrill when he discovers those tiny hands that can move in all sorts of ways. He gazes at them in mute astonishment. Armed with the sensation of touch he becomes the great explorer learning the "feel" of the rest of his body and of any objects upon which he can lay his hands. Those curious little toes often have a special fascination for him. His joy in playing with his first toy knows no bounds.

When baby finds that he can make sounds other than those of crying he is quite delighted. It may be just a gurgle or a rough noise or a soft melodious sound. He will try to repeat that sound again and again, often failing, sometimes succeeding. In due time he will master the problem and the sound will become part of his regular repertoire.

Imitation is another innate factor that plays a large role in the mental and emotional growth of the child. This makes itself felt toward the end of the first year and exerts a marked influence throughout the pre-school period. Both in action and in words do

we find expression of this imitative impulse. Watch little Frank at fourteen months try to write with pencil and paper just like dad does, or hear Jane, imitating mother with index finger pointed upward in a characteristic position of reprimand, say "No, no, Jane" in a most emphatic way.

Just as weights and heights are accurately measured attempts have been made to determine with a considerable degree of exactness the mental and emotional development of infants. In this country the most important work along these lines has been done by Dr. Arnold Gesell of Yale University.*

Careful observations of the actions and emotional responses of a group of normal infants over a long period of time were recorded. With the use of simple testing materials, pellets, red rings, cubes, spoons, form-boards and crayons, Gesell was able to collect some interesting data. This material was included in an infant development schedule which traces the mental and emotional growth of the child from birth to thirty months. We shall present some of the more important steps in this growth, as outlined by Gesell.

As early as the first month the infant is able to lift his head occasionally when held against the mother's shoulder. When laid flat on the abdomen, crawling movements may frequently be noted and the head is often raised while in this position. Loud sounds are heard and large moving objects are noticed. When a ring is placed in his hand it is usually grasped.

At the age of two months, baby can often make

* Arnold Gesell, *Infancy and Human Growth*.

several different sounds and turns his head on hearing the speaking voice. The eyes follow the movements of persons in the room. In the bath he often kicks his little feet or pushes his legs.

At three months, the infant is usually able to hold his head erect without drooping when lifted to the mother's shoulder. When placed flat on the abdomen he tries to push or raise himself. His emotional responses are clearly defined in sound as in cooing and in smiles which are expressions of his pleasure and of his social activity. The infant is often pacified by the voice or by sound.

By the time the sixth month is reached considerable progress has been made. Baby is able to sit for a moment without support when placed in an advantageous leaning position. He is able to hold two small objects as cubes, one in either hand at the same time. He reaches for objects on sight; plays with a spoon, banging and rapping on the table with joy and glee expressed in sounds and smiles. He is able to recognize the difference between members of the household and strangers. His cooing and crowing are vocalizations of pleasure.

At nine months baby is frequently able to sit alone and will often creep actively; says "ma-ma" or "da-da"; waves "bye-bye" imitatively. He is able to combine two objects in play as a cup and cube. Scribbling will often attract his interest.

At the tenth month level an attempt is often made by the infant to pull himself up to a standing position. He begins to imitate definite intelligible sounds and to learn the significance of certain words. If permitted to manipulate a cup and cube, the latter

being concealed under the former, he will usually lift the cup by the handle and discover the hidden cube. When placed before a mirror, he may express a playful glee in viewing the image.

When the first birthday is reached, baby can usually walk with assistance and can lower himself from the standing to the sitting position. He is able to say two words and will obey simple word commands. If requested he will put the cube in or over the cup. He is usually able to hold a crayon in correct position and imitates scribbling. He has learned to hold cup from which to drink. He is able to restrain some of the elementary acts on command and will often repeat his little tricks if laughed at.

At fifteen months the baby is quite grown up. He is able to stand and walk alone. He says three or four words clearly and has a vigorous flow of "baby talk." If presented with two blocks he will probably begin to build a tower. He is able to use a spoon.

The eighteen months old child begins to climb up stairs or on chairs. He is able to throw a ball into a box and enjoys scribbling. When requested he will demonstrate the various parts of the face, the eyes, nose and mouth. He is able to pile up three or four blocks; manages a spoon with almost perfect control. He delights in turning the leaves of a book and looking at pictures.

At two years the child has usually learned to run about, joyful in his accomplishment. He is now able to build a tower with six blocks, displaying considerable dexterity. The use of language has advanced so that now about three out of five simple objects can be named and words are combined. He imitates

actions and sounds and delights in relating experiences. With the joy of recognition he relates the story of the pictures as he turns the pages of the book.

These observations and tests are interesting in showing the gradual unfolding of the young child's mental and emotional life. There are many other observations and tests that could be applied to demonstrate this growth.

The facts presented should not be used by the mother to judge or to score her child's mental status with any degree of accuracy. Some children may be far advanced in motor co-ordination, yet retarded in social behavior. In quite a few instances, language expression is considerably delayed in children who appear to be up to a normal standard in other respects. If the hearing is unimpaired and the child seems to understand what is said, a delay in language development should be no cause for anxiety.

An exact appraisal of the child's mental and emotional development includes many complex factors. It should be attempted only by the trained psychologist or the pediatrician well versed in this field. In the ordinary course of events such exact appraisal, however, is not necessary during infancy. With the knowledge of the important steps in normal mental and emotional growth, the parents can usually detect any signs of backwardness. If any suspicions arise the physician should be consulted.

VII

GUIDING THE INFANT IN HIS INTELLECTUAL AND EMOTIONAL GROWTH

Importance of Child Guidance—Preventive Work in Child Guidance—Parents' Responsibility in Child Training—Basic Principles of Infant Guidance—The Pampered Child—Affection and Attention—Thumb-Sucking—Constructive Wholesome Behavior—Masturbation—Training for Control of Bowel Elimination—Control of Urination—Important Factors in Guidance of the Toddler—Value of Toys—Toys for the Infant—Independence in Feeding—Poise and Good Manners.

AT the present day there is probably no subject more vital, more replete with possibilities than the proper guidance of the young child in his intellectual and emotional growth. This is fully as important, even in infancy, as his physical care and feeding. Upon this guidance will depend in no small measure his future usefulness, character, and happiness. The effect of this guidance will be felt, too, by all those with whom he may come in contact. What a tremendous opportunity lies in parenthood!

Science has given us one marvelous discovery after another but it has made our lives more complicated than ever before. The methods of training children in the past have apparently not well prepared us adults to meet effectively the problems confronting us at the present time. The recent collapse of the economic structure all over the world, the alarming increase in racketeering, in juvenile crime, in mental

derangements, bear striking witness to this inadequacy. The large number of people who have various neuroses, feelings of inferiority, lack of stamina, which prevent them from living a full and happy life, are living evidence of a faulty mental and emotional guidance. The world calls for a new generation, sturdy, fearless, independent minds possessed of a broad social consciousness.

The only way we can hope to approach this goal is through a proper guidance of the young. We cannot, of course, disregard the role of inheritance in shaping the individual child. It is impossible to evaluate the relative importance of inheritance and environment. We feel certain, however, that a large proportion of the failures, of anti-social tendencies and much unhappiness of adult life could be prevented by starting our boys and girls along the right path. Parents cannot foresee the future problems of the child. They can, however, direct his course so that he will be mentally and emotionally equipped to face the exigencies of life with courage and self-confidence.

The right time to begin this guidance is during infancy, indeed from the very day of birth. Habits are formed at this early age with amazing rapidity. Just rock a baby to sleep two or three times and you will find him thereafter howling for the soothing motion.

The importance of beginning the intellectual and emotional guidance of the child so early in life has not been sufficiently recognized. The infant is often showered with attention and pampered by all the members of the household because of his apparent

helplessness and cuteness. "He's such a little mite," says the mother, "I'll train him all right when he grows up and understands things." That mother is entirely mistaken. She underestimates her baby's mental capacity. That baby will soon be the ruler of the home, will determine how much sleep the parents may enjoy and how much time they may take for meals and recreation. And then a few years later that same child may have lost the allure of tininess and of helplessness, but will not have lost his desire for the throne. He held sway in infancy, why not now? The parents, however, have changed their attitude. They no longer want to be subjected to the whims and wiles of the child. The child now becomes a naughty boy or girl that needs discipline. In her desperation, the mother may resort to various forms of punishment; to scolding the child, depriving him of privileges or toys. The mental and emotional conflicts that arise from this relationship sometimes prove disastrous to both mother and child.

The series of events which we have portrayed is unfortunately of very common occurrence. Parents should realize that the tiny baby is not just a lovely little toy brought into the world to satisfy their own desires and cravings. The tiny baby will be the grown-up of the future and the influences which are brought to bear upon him early in life will have a lasting effect. Parenthood is an undertaking of responsibility. It should be built upon a foundation of love tempered with good common sense.

From the outset it must be understood that all babies do not arrive in this world with the same in-

tellectual and emotional capabilities. It cannot be questioned that some children are, on account of inherited characteristics, readily influenced and easily guided. There are many others who are naturally difficult to rear, who present many problems in the course of their early life, problems which call for the greatest amount of patience and intelligence. It frequently happens that the brightest and most alert children require the most skillful treatment. In children of this group lodge not infrequently the seeds of great future power. With the proper nurturing these will blossom into glorious manhood and womanhood. With such beginnings fine leadership may be born.

While parents must, to a certain extent, use varying methods in the guidance of their children, there are a number of general principles that can be widely applied.

During the first months the delicate and sensitive nervous system of the tiny baby requires a very quiet and restful environment. Sudden loud noises, jolts and rapid movements should be avoided. The baby should not be displayed under any circumstances. The resultant excitement and confusion produce a nerve fatigue which will soon manifest itself in irritability and restlessness. If any serious emergency arises in the household it is essential that the infant be protected from the noise and bustle which usually accompanies such an occurrence. Parents must control themselves. The child should never perceive their fears and worries. Neither from their voices nor actions should the infant sense any danger. A sudden fright in infancy may have a far-

reaching influence on the emotional life of the child. A quiet, serene babyhood helps develop a strong nervous system so necessary for the efficiency and happiness of the individual. A sense of security and a feeling of being wanted should be fostered in the child by the proper attitude of the mother.

Regularity both in the feeding and in the general hygienic care of the infant is necessary not only for his physical well-being but also for his mental and emotional development as well. If baby receives his feedings, bath, sleep, exercise and airing at the same time each day no undue strain is placed upon the nervous system. But if the mother becomes lax in her routine, and essentials to good physical health are carried out at irregular intervals, in a haphazard manner, the baby becomes completely confused. He does not know just what to expect. His little world becomes a very complicated one, difficult for the young mind to grasp. This state of affairs makes him unhappy and he is a bad or "cry" baby when the trouble is really in the household management. Simplicity should be sought in the arrangement of the regular daily routine.

If parents would realize that it is much easier to develop good habits in the baby right from the start than to break bad ones later in life, many of the most difficult situations could be avoided. If mother fusses with the baby all day, picking him up at the least provocation, overstimulating the sensitive nervous system with constant amusement, why should she be disappointed or surprised if the same child at the age of three years demands her constant attention? If then he is suddenly thwarted, as is often

the case, the child is apt to indulge in violent tantrums. The pampered baby becomes the spoiled child and the spoiled child often becomes the immature or perhaps the aggressive, anti-social adult.

All this does not mean that parents should be cold or indifferent in their emotional attitude toward the baby. Quite the contrary, the baby thrives best in the warm glow of mother's love. This love should be clearly demonstrated in the care and scrupulous attention to all his physical needs. By being kept dry and comfortable, with proper feedings at regular intervals, the infant undoubtedly feels a sense of security. If in addition mother picks him up after feedings, shows him signs of affection and watches him for a few minutes during his free exercise period, the baby will be made completely happy.

Now and then one finds a phlegmatic type of baby. Such an infant shows little tendency to active, spontaneous movements and may perhaps be slow in his emotional responses. In such a case it is advisable to stimulate activity somewhat by having several periods of play during the day and in picking him up more often. There is little likelihood of spoiling such a baby. He is usually too good. This type of infant is quite exceptional. Mother should carefully determine that her child belongs in this group before following this more liberal procedure. The physician might well be consulted on this subject.

Thumb-Sucking

One of the problems of infant behavior that arouses considerable discussion is that of thumb-

sucking. This is a little different from the usual bad habits, which have their beginning in some outside stimulation or conditioning as when the infant is rocked to sleep or is given a pacifier to keep him quiet. Such bad habits are initiated by acts of the mother or other members of the household and can be easily prevented. Thumb-sucking on the other hand arises from an impulse within the baby. It is a manifestation of the newborn infant's sucking reflex. With it there is undoubtedly a pleasurable sensation which tends to encourage frequent repetitions. Occasional or transitory thumb-sucking should be no cause for anxiety. As the infant grows older the desire often diminishes. Some authorities believe that thumb-sucking is more likely to develop in those babies that do not have a sufficient amount of sucking at the mother's breast or of the rubber nipple, but this has not been definitely established.

If thumb-sucking becomes excessive an endeavor should be made to wean him of this habit. We must first be certain that the infant is not hungry for this may be the underlying cause. If this is not the case the mother should gently remove his hand whenever he sucks his thumb while she attracts his attention to a rattle or other toy. This procedure may have to be repeated a number of times before attaining success. Do not jerk his hand out of the mouth or scold or even raise your voice in a loud "no, no." This will only increase the tendency. There is no need to stop the habit by sudden repressive or restraining measures. It is only after many months that the pressure of the thumb against the palate may cause an undesirable protrusion of the teeth.

That thumb-sucking will produce a change in the contour of the mouth has not been definitely proven but it is a fact that many children with protruding teeth have been excessive thumb-suckers. We should, of course, try to prevent this possible deformity. If we succeed in stopping the habit before the infant is eight or nine months old there is certainly little chance of such an outcome. A great deal of patience is required to control this habit.

We are not in favor of using any of the mechanical devices for combating thumb-sucking. We feel certain that only in extremely rare cases may a physician find himself compelled to resort to their use.

Constructive Wholesome Behavior

When the baby has reached the age of five or six months, he usually has the urge to touch everything in sight. With the use of his eyes and hands he learns the various qualities of things in his environment. He learns their appearance, their form and texture. This innate curiosity lays the cornerstone of his future store of knowledge and should be encouraged. Extreme care should be used, however, to have within his reach only such objects that cannot injure him in any way. One or two simple objects or toys are sufficient at any one time. Too many toys may overstimulate and tire the sensitive nervous system. The danger of overstimulation increases when at the age of eight or nine months he sits up for the first time. Then he is suddenly confronted with a panorama of new delights. He would love

to grasp everything within view. Too often mothers will say in a loud voice "no, no" or "don't touch" or just a single "no" with a pointed gesture, when baby touches something he should not touch. Such an emotional response on the part of the mother is often welcomed by the child who, enjoying the excitement, is likely to repeat the performance. The more satisfactory way is to keep all unsuitable objects out of baby's reach but if by chance the child does get hold of one, mother should with firmness but without the least manifestation of anger or excitement remove the objectionable article. At the same time another article may be substituted for the dangerous one. This should be the method of guiding the child all through his formative years. Initiative and individualism should not be repressed by frequent "nos" and "don'ts." Don't should be used rarely and only when imperative. When the command "don't" is given it should be absolutely final and so understood by the child. When restraint does become necessary it should be exacted with despatch and with the least possible emotional disturbance. Constructive wholesome behavior in place of destructive or harmful actions should be encouraged.

When the little one begins to walk, his adventurous spirit takes him to what often appears to the mother the most outlandish places. At one time it is the farthest corner of a deep dark clothes closet or at another time it may be the toilet bowl that has the greatest fascination for the young toddler. In his explorations he is simply trying to satisfy his natural curiosity. If mother, in attempting to stop these adventures, rushes after the child with

obvious concern in her actions and voice, the child is very apt to be pleased and to repeat the same escapades. Baby enjoys the dramatic scene. If on the other hand, mother calmly leads him to his nursery or to some other part of the house and engages his attention in some constructive or amusing toy, the dark closet or bowl will soon be forgotten.

By the end of the first year, baby has very likely explored his own body; he often does when only five or six months. On touching the genital organs a new kind of pleasurable sensation may have been experienced which may lead to repeated masturbation. In the past this was looked upon as a dreadful habit fraught with all sorts of dangers for the child's entire future. Even now, many otherwise intelligent parents anxiously inquire whether their child will not be mentally retarded because of this habit. There is certainly no evidence to substantiate this belief. If noticed it should cause no special concern. An occasional indulgence in this act may be disregarded entirely but if it is excessive, an endeavor should be made to curb the habit. This should be done casually by gently removing the hand from the genitals and substituting some other interest. Under no circumstance should the mother show any emotional reaction. The idea of guilt should never be suggested. The child should never be scolded or punished in any way nor should any mechanical devices be employed. The mother's excitement may only intensify the habit and any vigorous, repressive measures may possibly lead to sexual disturbances in later life.

Bowel Elimination

Another subject which is of considerable interest to every mother and nurse is the regulation of the young child's functions of elimination. The time for training the infant to move his bowels regularly in a chamber will depend, to a considerable extent, upon his general muscular development. The strong, sturdy infant can be trained earlier than the delicate thin child. The modern tendency to begin this training with all infants at the early age of two or three months is not to be encouraged. This may be convenient for the nurse or mother but it is distinctly harmful to the child. The act requires a more mature muscular development than is present at two or three months. This muscular development is reached in the average baby at about the fifth or sixth month, when he is usually able to sit up with support. The method consists in holding the baby upon a small chamber which is placed between the nurse's knees. The baby's back is held firmly against the nurse's chest. For the first two or three days, the rectum may be stimulated if necessary by the insertion of a small glycerin suppository. The use of the suppository or any other stimulant should never be continued for more than a week. The baby should be placed upon the chamber twice a day, after the morning and afternoon bottles, and at exactly the same time each day. This regularity in bowel movement will soon become a habit that may well continue throughout life.

Control of Urination

The process of educating the child in the control of urination may begin somewhat later at about the ninth or tenth month. A reliable guide to follow in deciding when to start, is to notice when the intervals between wet diapers become longer. This is an indication that the bladder may be more readily brought under voluntary control. At first, place the child on the chamber every hour or at intervals corresponding to the time which elapses between wet diapers. Gradually increase this interval. At about eighteen months the child should have complete control of urination during the day. When the second birthday is reached he can usually ask to go to the toilet. Sometime between the second and third year bed-wetting at night stops in most children.

The little one should be made comfortable while attending to his bodily functions. Under no circumstances should he be placed upon the adult's toilet. A nursery chair with a back support, but with no toys is most suitable. The chair should be of the proper height so that the child can have his little feet firmly on the floor. The special seat which is placed over the adult's bowl should be used only if a foot rest is provided.

In developing these habits of elimination in the young child, the mother or nurse should treat the whole procedure in the most matter-of-fact way. There should be no coaxing or cajoling or scolding. Any emotional element will surely defeat the purpose. Too much emphasis on the subject may pos-

sibly produce emotional difficulties later in life. A sense of privacy should be encouraged in the child by having the toilet chair in the nursery or bathroom, but never in the living room or kitchen.

Guidance of the Toddler

The intellectual and emotional growth of the child proceeds during the second year by leaps and bounds. As the little one toddles around in the house and outdoors, he acquires a tremendous amount of knowledge. To us adults the simple objects of our everyday environment are so well known that we often fail to realize the extent of the child's early mental growth in acquiring this knowledge. Everything should be done to encourage this natural development. Except for his two rest periods, morning and afternoon, he should be permitted to romp around to his heart's content. The child's clothes should be loose fitting so that his movements are unrestrained. He should be carefully protected from injury, however, but in a very unobtrusive way. Mother or nurse should be near by during his activity, ready to guard him against any real danger as a burn from a stove, matches, an exposed radiator, or a fall from a high chair or flight of stairs, etc. But mother or nurse should never express any fear or show any emotional strain in the child's presence. These fears are quickly communicated to the child and hamper his full and free development. If this attitude of fear persists he will grow up afraid of acting on his own initiative. Allow the little one to learn from actual experiences. If he

falls while trying to walk, let him pick himself up even if he has a difficult job of it. The next time it will be easier. Let him feel a radiator hot enough to give him an uncomfortable sensation but not hot enough to produce a burn. He will quickly learn to avoid such an object. When he starts to climb up and down chairs do not stop him. This affords the child a great thrill. This exercise should take place in the nursery where the furniture should be such that it cannot be spoiled. Even if the child has no room of his own, some corner for his toys and a few durable chairs can be allotted to him where he may play without any interference.

Toys

The value of properly selected toys in the intellectual guidance of children has not received sufficient recognition. A child can learn a great deal from suitable playthings. Too often the mother or kind friend chooses a toy because it appeals to her rather than for its educational importance for the child. Much effort and money have been wasted in this way.

During the first year infants should be presented with the simplest kind of toys. The rattle is useful because it teaches the baby how to grasp objects. Animals made of terry cloth or powder puff material, rubber cube blocks, large spools, rubber balls and rattles containing beads, teach the infant the various differences in the shape and feel of objects as well as differences in sounds. These are all washable and if colored it is well to make certain that only

vegetable dyes have been used as they are harmless. Infants have a way of putting everything in their mouths. At ten months baby may be given a large rag book. This is washable and does not tear easily. Pictures of animals are vividly shown.

For the second year somewhat more complicated toys have been devised. A box of colored blocks, each in the shape of a cube of about $2\frac{1}{2}$ inches, or a pyramid of blocks may first be presented. This may be followed by the peg board which consists of large colored pegs that fit into holes in a board and are capped by beads the colors of which match the various pegs. Baby soon learns to match colors and to adjust the pegs properly. A box of jumbo crayons with sheets of paper are a great source of amusement and are obviously of distinct educational value as well.

For a child of about one and one half years, a wagon of blocks, a peg board with colors to match on the floor of the board, and the Russian egg which consists of various sizes of colored, hollow, paste-board eggs, one fitting inside the other, are a few examples of instructive toys.

When he reaches the age of two years the colored puzzle form boards in which the child must fit wooden cut-outs of various objects into exact spaces, are very useful. Tinker plugs and various train sets that can be easily put together and taken apart tend to stimulate the power of concentration and arouse interest in creative work.

Toys are also useful in other ways. When the tiny infant throws his rattle to the floor it should not be picked up for him. He soon learns it is best

to keep it within reach. He learns the relationship between cause and effect. If crying does not bring the toy back he realizes that he must not drop it. It is surprising how quickly the infant grasps this idea.

During the second year a sense of neatness and tidiness can be developed in the child if mother will encourage him to put his toys away when he is through playing. This will also instill in him a feeling of independence.

Independence in Feeding

This independence should be developed in all the child's activities. Especially is this true with respect to his feeding habits. At the age of one year he should begin to learn to feed himself. The bottle should be discontinued and the milk taken from a cup. The baby's first attempt to feed himself probably will cause quite a mess but if the mother or nurse will have a little patience and perseverance, in time she will be more than repaid for the effort. The child will eventually enjoy his mastery of the job and his feeding time will not be unpleasant to him or to others. Feeding time is too often a disagreeable and annoying period. It should be a cheerful and pleasant one. On no occasion should the child be made to feel that the mother is unduly concerned about his feeding, as only too readily does he realize this can be used as an attention getting device.

During the second year the child has a natural impulse to imitate everything he sees and hears and

this should be constantly borne in mind. Parents should be most careful in their choice of language and in their manner when in the presence of the little one. A slang word carelessly uttered, perhaps in the spirit of fun, may become a habitual expression of the young mimic. The loud voice and the excited nervous manner are imitated by the young one just as readily as are well modulated tones and poise.

The little one's fondness for imitation can be used to instill in him the usual courtesies. If the mother will always say please and thank you the child will soon learn to do so likewise. It will then not be necessary for him to go through a special training in good manners. Such training often consumes a great deal of time which could be used to much greater advantage in constructive, interesting play. Good manners and good cheer will naturally emanate from the child who feels their presence all around him.

These suggestions which we have offered for the infant's guidance are not always easily carried out. It is, we admit, much simpler to write and talk about them than to put them into actual practice. The job of being a parent is not an easy one. It requires much effort, patience and intelligence. But if the parents succeed in laying the foundation of a healthy, wholesome and happy childhood, the time and energy expended will bring dividends of inestimable value that will never be passed.

Part Three

THE PRE-SCHOOL CHILD

I

THE NEGLECTED PERIOD

Definition of Pre-School Child—Periodic Examination—Its Importance—Nursery Schools.

THE importance of the proper care of the infant has been recognized for many years. Public health agencies and pediatricians have long concentrated their efforts on health programs for the baby. Infant feeding and general hygiene during the first two years, more particularly during the first, have so completely engaged the attention of child specialists and welfare organizations that the pre-school period has failed to receive the attention it deserves.

The indifference of the authorities to this significant span of the child's life has been reflected in the attitude of many parents. When the first year or two have passed the physical care and the mental guidance of the child are often carried out in a more or less haphazard way. Periodic health examinations, so zealously arranged for during infancy, are often omitted. Many mothers, who, in their early enthusiasm, carried out the tenets of hygiene to the minutest detail, become entirely too lax when the child passes his second birthday.

The truth of these statements is clearly born out by the results of physical examinations of large numbers of children entering the public schools. Poor

nutrition, faulty posture, defective vision, impaired hearing, decayed teeth, and obstructing or diseased tonsils and adenoids are common defects one or more of which are found in many of these children. A great number of them unprepared for group activities, embark upon their school career with fear and anxiety. This emotional strain often reacts upon their physical make-up producing a number of functional disorders as vomiting or loss of appetite, and various nervous manifestations including blinking, nail biting, insomnia, etc.

Most of these difficulties can be prevented or corrected by proper physical supervision and intelligent guidance of the child during the pre-school period. Such care will generally allow the child to enter upon his school work without the handicap of physical defects or social maladjustment.

The pre-school period extending from two to six years is one of active physical and mental growth. This growth is at a rate greater than at any future period. Especially is this true of the nervous system. The brain, the spinal cord, and the sense organs such as the eye and ear grow very rapidly up to six years and but little from then on. At five or six years the brain has nearly reached its full size. The further development of this important structure consists in the formation of new connections between old cells, not in the production of new ones.

It has often been said that the complete personality and character of the individual are formed by the end of this period. According to this view the type of person the child will grow up to be is determined before he passes his sixth birthday. While

we do not subscribe fully to this radical opinion, we feel that there is sufficient evidence to show that the environment of the child during this period has a profound and lasting effect upon the development of the adult personality. The child's environment includes not only his physical surroundings but all the influences that are brought to bear upon his intellectual and emotional life through social contacts.

It is during this period more than any other that the child requires the intelligent and loving care of his parents. Fortunate is the child who enjoys the personal care of his mother during this time or the care of an intelligent and well trained nurse. The practice of placing the little runabout in the custody of an untutored maid or an inexperienced and immature high school girl for a considerable part of the day, is to be deprecated. The domineering attitude assumed by many of these pseudo nurses has a very harmful influence on the sensitive nervous system of the young child. The employees of the household may fill the child's mind with superstitions, fears and queer notions. Parents seldom realize the extent of the mental damage to the child by such association. If both parents are compelled to be away from the home for economic or other reasons the young child should be left in the care of an intelligent well educated and sympathetic person.

The nursery school offers the only alternative. Such a school affords trained supervision and an opportunity for early social contacts.

II

GENERAL CARE AND HYGIENE OF THE PRE-SCHOOL CHILD

Importance of Habit—Proper Feeding Habits—Symptoms of Fatigue—Sleeping Habits—Good Posture—Selection of Child's Clothing—Habits of Dressing—Outdoor Exercise—Care of Teeth—Habit of Elimination—Control of Bed Wetting.

TEACHING the young child the rudiments of good health and developing in him such health habits as will be of lasting benefit throughout his life is the keynote of his general care and hygiene. This can be accomplished best by making his environment conducive to the formation of such habits.

The little runabout should be taught the correct health procedures. Having learned them he should be expected to do these things as a matter of course. No nagging nor threatening should be necessary.

The health habits which the mother or nurse should aim to establish in the child should include those pertaining to his feeding, rest, posture, clothing, exercise, care of teeth, cleanliness and elimination.

Feeding Habits

If the suggestions in the previous chapters relating to infancy have been followed there should be no difficulty at meal time with our toddler at the age

of two years. By this time he should have learned to feed himself without much ado. He will need no artificial stimulation or entertainment while eating because such procedures are unknown to him at meal time. If such is not the case, however, and difficulties are encountered such as dawdling, refusing to eat, insisting on being fed instead of feeding himself or demanding attention or entertainment, it is not too late for re-education in the proper feeding habits. We must substitute good habits for bad ones. Feedings should be regular and at the same hour each day. The child should not be confronted with the entire meal at once. Only when he is finished with one dish should another be placed before him. There should be no attempt to feed him. Given the proper utensils and shown the way to eat by himself, he should be expected to feed himself thereafter. At first the child's attempts may appear clumsy and the mother will be tempted to help him. Although he should be encouraged in his attempts to feed himself, no other attention should be paid him at this time. The mother need not be concerned if particles of food find their way to the child's cheeks or chin, the table and the floor. Gradually this will stop as practice makes the child more adroit.

When he finishes the food in his dish, the next course should be placed before him. If he does not finish, the mother or nurse should appear unconcerned and no other food should be offered him until the next meal.

A few helpful devices to encourage the child to eat may be used. The promise of a coveted dessert or a pretty dish at the bottom of which is an interesting

picture that is visible only after the food is consumed may be used. During playtime, picture books in which are depicted children eating properly at meal-time, may be presented to the child as an incentive.

The importance of instilling good feeding habits in the young child cannot be stressed too much. In too many homes of otherwise intelligent persons the problem of the child's feeding is a very disturbing factor. The child's meal time is the most difficult and trying period of the day. As soon as the little one learns, and it is remarkable how quickly he does learn, that mother is much concerned about his meals, he uses her anxiety to his own advantage. If mother in her desire to "get the food down" is willing to feed the child, to tell him stories and to show him all sorts of tricks during this period, is it not perfectly reasonable and natural that he should demand this attention at every meal? The brighter the child, the greater variety of tricks that he demands of his mother as the price of eating his meal. Such practices on the part of the mother are obviously very bad from the standpoint of habit formation as well as character development and she should not resort to them.

Rest

The importance of rest in the life of the child has not been sufficiently appreciated. The modern way of living, its rush and bustle, its jazz and its continuous radio attractions has a tendency to over-stimulate both the body and mind of the young child. The day is so full of exciting events that there is little time left for rest or relaxation. This state of

affairs prevails especially in the large cities. Symptoms of fatigue often appear in the child as a result of this unwholesome régime. These symptoms are frequently unrecognized. The child is overactive, cross and restless, blinks his eyes or bites his finger nails in nervous excitement. The mother is often ready to punish the child because of her erroneous belief that the child is just naughty when the real trouble is his exhaustion from insufficient rest or sleep.

Every child of the pre-school age should have from one to two hours of rest in bed every afternoon preferably directly after lunch. He should be told that he is expected to sleep and if there is firmness in the mother's manner it is surprising how easily the sleeping habit can be formed. At the age of two to three years the rest period should be of a two-hour duration, from three to five years of one and one half hours and at six years of age one hour will prove sufficient. Eleven to twelve hours sleep is required at night all through the pre-school period. Bed time should be between 6 and 7 P. M. Before retiring for the night the child should attend to all his needs. The window should be opened wide top and bottom except in freezing weather. After mother has tucked him in bed and kissed him good night, all lights should be turned out and the child should be expected to fall asleep without further attention.

Sleeping arrangements in the home should always include a room for the child or children, separate from that of the parents, separation of the sexes after the third year, and an individual bed for each child.

Posture

Head erect, chin in, chest out, abdomen in, weight on the balls of the feet are evidences of good posture. Those amongst us who have observed many children closely cannot fail to notice how many of them stand poorly, walk poorly and sit poorly. Drooping head, flat chest, round shoulders, protruding abdomen are not uncommon.

It is important to prevent these conditions in early childhood when the tissues can be easily molded. One of the causes of faulty posture is rickets, the prevention of which has been previously discussed. Deficient feeding, insufficient rest, lack of fresh air and exercise, poorly constructed children's furniture, improperly fitted clothing, all these things influence posture adversely. If any of these conditions are present they should be corrected.

The care of the feet play an important role in the development of the proper posture. The shoe should be carefully chosen. It should be soft with flexible sole, a broad toe and heel that fits snugly. It should be $\frac{1}{2}$ inch longer than the foot to allow for growth. Up to $3\frac{1}{2}$ years the heel should be of the same thickness as the sole. From $3\frac{1}{2}$ years the heel should be twice as thick as the sole.

Feet should be parallel to each other in standing and walking, not with toes out as is commonly believed. The development of good posture and carriage in childhood will be of inestimable value throughout life.

Clothing

In the selection of the young child's clothing, due consideration should be given not only to the materials best suited for physical comfort and protection but to simplicity of style as well.

For the child's underwear the most satisfactory material is cotton. It is less irritating than wool and it lends itself best to frequent washing.

Wool may be employed for the outer clothes. When there are sudden variations of weather conditions the outer garments, not the underwear, should be changed to provide for an increase or drop in the temperature. The child's outer clothes should be large and loose enough to permit him to romp about in comfort. Many children are handicapped in their outdoor play by being bundled up. This does not allow them sufficient freedom of motion.

The child should begin to cultivate the habit of dressing and undressing himself in an orderly fashion as early as two years. His clothes should be made simple enough to make this possible. They should all be buttoned or fastened in the front and arranged so that they can be put on and taken off very easily. A definite system in dressing should be followed each time so that before long the procedure becomes entirely automatic. The establishment of this habit will conserve much needed time and energy when the child enters school.

Exercise and Open Air

Exercise in the open air should be made part of the child's daily regime. In their health building

properties sunlight, fresh air and exercise are far superior to bottles of tonic mixtures. All the various part of the body are favorably influenced by the invigoration that comes with outdoor exercise.

Only during extreme cold or stormy weather should the child be kept in the house.

For exercise outdoors, the young one should be provided with appropriate play things. Large balls, a kiddie car, tricycle, doll carriage, slide and swing are suitable for the child between two and four years; smaller balls, and foot balls, roller skates, a small bicycle, sled and tennis equipment, interest the older child from four to six years.

The importance of making the child's outdoor exercise habitual, cannot be emphasized too much. If this is not done, serious difficulties may arise in later childhood and adolescence. The child who has not been taken outdoors regularly during his early years, may, during his school career, wish to remain indoors all the time, poring over his books and studies, neglecting the essentials of good health. Social contact should be encouraged.

Care of Teeth

For many years the idea prevailed that the first teeth being temporary, did not require much attention. We now know that if they are neglected the second or permanent set of teeth may be seriously impaired.

Decayed teeth may produce difficulty in mastication, foul breath and an unpleasing appearance. If an abscess develops the pain is usually intense. Other

conditions arising from decayed teeth such as muscle and joint pains, diseased glands and heart affections have been described but are fortunately of very rare occurrence.

A well balanced diet insuring a sufficient amount of calcium, phosphorus and Vitamine D is essential for building sound teeth. The eating of sugar or candy does not cause decay as is so commonly believed, if the teeth are properly cleaned.

Cleanliness of the teeth is an important factor in the prevention of decay. Every child should be provided with a tooth brush and tooth paste or powder. He should learn that he should brush his teeth thoroughly at least twice a day, in the morning and before retiring at night. He can be taught to do this himself at two and one half years.

All cavities of the temporary teeth should be promptly filled when detected. If a tooth becomes badly decayed beyond repair it should be extracted.

The six year molars should be especially safeguarded. They are permanent teeth and play an important role in performing the function of a lock, keeping the other teeth in their correct positions in the jaw.

The large number of children entering the schools with defective teeth is evidence of widespread neglect of this important matter. Examination of the child's teeth by a dentist every six months is an important preventive measure.

Cleanliness

The daily bath which was regularly given during infancy should be continued with equal regularity

during the pre-school period. It is surprising to see how much dirt and grime can accumulate on the child's body in the course of a day. This dirt can best be removed in the bath with an individual wash cloth and some mild soap. The temperature of the water should be about 90° F. The genitals should be carefully cleansed during the bath; in boys the foreskin should be pushed back and the parts washed two or three times a week.

If mother becomes lax about the child's daily bath, no regular bathing habit is established and a great deal of unnecessary fussing and nagging are often resorted to in later years in the attempt to make the child take a bath even occasionally.

The child should be expected to wash his hands before sitting down for his meals. If the parents will set an example in this respect the child will soon learn to follow it.

Functions of Elimination

Habit formation regarding bowel movements and urination in infancy has been fully discussed (chapter X). At the age of two years the child's control of the bowel movements should have been accomplished. The regular habit should be continued by having the child move his bowels every morning at the same hour, preferably after breakfast. This should be done in the most casual matter-of-fact way. If an emotional element is injected into the procedure, as when the mother or nurse becomes loudly insistent or threatens punishment if no evacua-

tion occurs, the child may set up a resistance and a failure to establish the habit may result.

The complete control of urination at night is sometimes delayed until the age of three years even in normal children. If bed wetting continues after this period a physician should be consulted to determine whether the condition is due to some organic disorder of the urinary tract or whether it is just a continuation of the infantile habit on the basis of some psychological factor. The psychological factor is a much more common cause than is generally believed. It is not always obvious to the mother or nurse.

Bed wetting (nocturnal enuresis) is in many instances an attention getting device on the part of the child. He feels his importance in being able to disturb the household. Mother often gets terribly excited, is compelled to change the sheets and air the mattress. She may express anxiety about the danger of his catching cold or she may resort to all sorts of punishment from a vigorous reprimand to old-fashioned spanking. This child really enjoys this emotional upheaval and will repeat his nightly performance in his intense desire for increased attention. He himself may not be aware of the reason for his action. This behavior may be especially pronounced in a child whose jealousy has been aroused by mother's undue attention to another member of the family. He may resort to bed wetting to attract mother's attention to himself.

The treatment of this annoying condition depends upon the cause. If the physician has determined that

there is no disorder of the urinary system the following suggestions may prove helpful.

No fluids should be given the child after 4 P. M.; the supper being composed of concentrated food.

The child should be picked up and awakened for urination just before mother goes to bed.

Under no circumstances should the child receive any punishment nor should there be any kind of emotional reaction on the part of any other member of the household.

On all dry days praise should be lavishly bestowed. If the excitement follows the child's success rather than his failure he is likely to make every effort to keep dry. The child is most interested in getting attention but whether he is dry or wet is of comparatively little importance.

Rewards in the form of gold stamps, one for every dry day, are often helpful. Sometimes a complete change of environment produces the desired result.

III

GROWTH, NUTRITION AND DIET

Individual Differences in Growth—Individual Differences in Physical, Intellectual and Emotional Make-Up—Relation of Weight to Health—Height—Nutrition—Tables Based on Weight and Height—Gauging Nutrition—Day's Menu—Cereal Cooked with Milk—Vegetables—Value of Eggs—Undesirable Foods—Allergic Reactions—Concentrated Vitamine Preparations—Cod Liver Oil—Diet Lists—Undernourished Child—Treatment of Malnutrition.

THE transition from infancy to the pre-school period is not marked by any abrupt change in development. The process of growth is gradual and continuous. The individual differences in the rate of growth which have been noted during early life are also present during the pre-school period. As children advance in years these variations become even more apparent. The importance of such factors as race and ancestry in the determination of the child's body build and rate of growth becomes more evident. The types of body structure of the parents are often manifest in the build of the young child.

The longer we observe children, the more we are impressed by the individual differences in their body as well as in their intellectual and emotional make-up. The environment undoubtedly plays a large role but it does not tell the whole story. Frequently do we find siblings reared under the same roof, surrounded by the same influences, who show but little resemblance to each other either physically or men-

tally. The important fact to bear in mind is that by furnishing a healthful and wholesome environment, the potential physical and mental powers of each child can be fully developed. This opportunity for individual growth under favorable conditions should be provided for every child.

The Weight

As in infancy, a regular gain in weight in the pre-school child is one of the important indications of good health. From two to six years the normal average increase is about five pounds per year. During this period the child should be weighed once a month. If there is no gain for two or three months, the child's physician should be consulted to determine the cause.

Failure to gain is usually due to an inadequate consumption of food. This deficiency may in turn be due to poor appetite, poor feeding habits or some chronic infection. A rapid loss of weight due to high fever combined with loss of appetite is frequently seen during acute infections. This loss is usually made up after the subsidence of the high temperature. A stomach or intestinal disorder, by causing a reduction of the intake or absorption of food may also produce loss of weight.

A common cause of failure to gain is overactivity, which often exerts its influence in two ways. In the first place, overactivity requires a large amount of food in order to cover the increased production of energy, and secondly, it causes fatigue in the child resulting in a diminished appetite. This effect of

fatigue on the child's appetite is seldom realized. It is obvious that with a smaller intake and a greater need for food, failure to gain or actual loss of weight will follow. The importance of including sufficient rest in the daily program of the young child has been previously discussed. It is to be especially stressed in the care of children who fail to gain weight regularly.

Height

Great variation exists in the height of children of the same age. As we observe marked differences in the height of adults, we should not be surprised to find variations in early childhood. The average yearly increase in height during the pre-school period is about three inches. Exercise in the open air, sunshine and a sufficient, well balanced diet tend to stimulate the rate of growth in height. This growth may be stunted under a poor hygienic regime and as a result of rickets. The thyroid and pituitary glands regulate the growth. Where there is a decreased thyroid secretion, as in Cretinism, the growth in height is markedly inhibited. Disturbed function of the pituitary gland results either in stunted or accelerated growth.

There are no distinct sex differences in growth during the pre-school age. They appear later in childhood with the onset of puberty.

Nutrition

While the weight and height are important criteria of the child's nutrition, other factors pre-

viously discussed in relation to infant nutrition are of equal importance. The condition of the child's blood which can be judged roughly by inspecting the skin and mucous membranes, but more accurately by an examination of the blood itself, should always be considered. If a secondary anemia, not uncommon even in stout children, is present, a few simple measures, including a proper diet, fresh air and an iron preparation, will usually effect a rapid improvement. The muscular development of the young child is an important factor in his general health. The nutrition of the child with a flabby musculature cannot be pronounced good, even though his weight and height are up to our normal standards. Taking plenty of exercise in the open air as walking, jumping, running, playing ball or hop-scotch is the way to build strong muscles.

The turgor or elasticity of the skin and underlying tissue should also be included in our conception of nutrition. The normal, healthy skin is resilient, and after being raised in a fold does not remain wrinkled. Poor turgor is found in children after an acute illness in the course of which there has been a considerable loss of water. This loss may occur by way of the stomach through vomiting or by way of the bowels through diarrheal stool. Prolonged, chronic disorders may also affect the turgor of the skin.

The deposit of fat in the child of pre-school age is not normally as marked as that of the infant. It is usually well distributed.

The state of nutrition of the young child is judged by all these factors in addition to his weight, height

or sitting height and constitutional type or body build. The child with a narrow, bony frame should certainly not be expected to weigh as much as the child with a broad, heavy set skeletal structure. Yet both may be equally tall. Each child requires an individual appraisal of his nutritional condition. The one best qualified to do this is the child's physician. This survey should be made part of the child's periodic health examination every six months.

The common practice of having large groups of children merely weighed and measured by nurses, teachers, social workers in order to segregate the undernourished for special treatment, often results in placing some healthy children in the malnourished group and some malnourished children in the normal group.

As was the case with infants, various methods have been employed to measure the nutritional state of the pre-school child in percentages. A table based on the average weights for boys and girls of each inch height in the age group from birth to six years has been prepared by Dr. Robert Woodbury of the United States Children's Bureau. The records of the heights and weights of 167,024 apparently normal children from all parts of the country were collected for this purpose. The tables which are presented here are useful only insofar as they permit comparisons with average measurements at the various ages.

Woodbury Tables

To read these tables look along the top until you see the age of your child then down the side until

WEIGHT-HEIGHT-AGE TABLE FOR BOYS FROM BIRTH TO SCHOOL AGE

i. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest birthday.

height is stated to the nearest pound; height to the nearest inch; age to the nearest birthday.
Coats and including 34 inches the *weights are net*. Above this the following amounts have been added for clothing (shoes, coats and sweaters not included):
 35 to 30 , $1\frac{1}{4}$ pounds— 40 to 44 in., $1\frac{1}{2}$ pounds— 45 to 49 in., $1\frac{3}{4}$ pounds. Prepared by Robert M. Woodbury, Ph.D.

WEIGHT—HEIGHT—AGE TABLE FOR GIRLS FROM BIRTH TO SCHOOL AGE

Height (inches)	Average Weight for Height (Pounds)	1 mo.	3 mos.	6 mos.	9 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.	60 mos.	72 mos.
20	8	8	10	11	12	13	14	14	14	14	14	14	14
21	9	9	10	11	12	13	14	14	14	14	14	14	14
22	10½	10	11	12	13	14	14	14	14	14	14	14	14
23	12	11	12	13	14	14	14	14	14	14	14	14	14
24	13½	12	13	14	15	15	15	15	15	15	15	15	15
25	15	13	14	15	16	17	17	17	17	17	17	17	17
26	16½	15	16	17	18	18	18	18	18	18	18	18	18
27	17½	17	18	19	19	19	19	19	19	19	19	19	19
28	19	19	19	19	19	19	19	19	19	19	19	19	19
29	20	19	19	19	20	20	20	20	20	20	20	20	20
30	21½												
31	22½												
32	24												
33	25												
34	26½												
35	29												
36	30												
37	31½												
38	32½												
39	34												
40	35½												
41	37½												
42	39												
43	41												
44	42½												
45	45												
46	47½												
47	50												
48	52½												

1. Weight is stated to the nearest pound; height to the nearest inch; age to the nearest month.
 2. Up to and including 34 inches the weights are net. Above this the following amounts have been added for clothing (shoes and sweaters are not included);
 35 to 39 in. 1 pound—40 to 44 in. 1½ pounds—45 to 49 in. 1¾ pounds.

45
47
50
52

you find his height; read down and across to find the weight.

A more satisfactory method of gauging nutrition with measurements is one that depends upon the relations between the sitting height and weight. The resultant index, called the pelidisi, presents a fairly accurate estimation of the nutritional status of the children measured in this way. For a complete description of the method of obtaining this index see page 104.

Diet

The diet of the pre-school child should contain all the food elements needed for his growth and body functions. These elements are proteins, carbohydrates, fats, vitamines, minerals and water. The role played by these substances and their most common sources have been previously discussed (see page 8).

The day's menu should include milk, cereals, eggs, bread and butter, sugar, meat or fish, vegetables, fresh fruit and a dessert.

The milk should be Grade A or certified but it should never be the "loose milk" stored in the grocery can. For the pre-school child it is usually not necessary to boil the milk as in infancy. Only where there is a tendency to loose bowels or in the event of an outbreak of disease where the milk supply is under suspicion, is it essential to boil the milk. Three glasses of milk a day is sufficient for the average child. Cocoa and sugar or one of the chocolate malt preparations may be added if the child dislikes plain

milk or if it is desirable to increase the caloric intake.

Cereals and bread made of whole wheat are preferable to the refined white varieties. The former are a rich source of Vitamine B and are useful in stimulating bowel elimination. Cooked cereal should be used rather than the cold ready-to-serve assortment, as much more bulk of the latter must be eaten in order to obtain an equal nutritive value. Experience shows that the average child refuses to take such large quantities.

The nutritive value of cereals can be increased by cooking them in milk instead of water and by the addition of sugar. There are some children, however, who cannot tolerate this mixture so that water must be used. Milk should not be employed in cooking the cereal for the overweight child. It should be cooked in a double boiler for forty minutes and used the same day.

Vegetables should be cooked, in a double boiler until soft, in the smallest possible amount of water. This water, which contains valuable salts, should be served with the vegetables. The pre-school child should eat the vegetables whole, no straining or mashing being necessary. Fresh vegetables and fruit properly cooked are preferable to canned goods.

Eggs of course should be the freshest available. From the very nature of their biological function, eggs must contain many valuable nutritive elements. Besides protein and fat they contain, among other substances, a considerable amount of iron, phosphorus and Vitamines A, B and D.

In the preparation of desserts for the young child attention should be given to details of appearance as well as to taste. They should be made pleasing to both the eye and the palate.

There are some foods that should not be offered to the young child. These include fried foods which are apt to cause digestive disturbances; spicy foods and condiments which may so affect the child's appetite that a simple wholesome diet will no longer be desired.

There are a number of children whose digestive systems cannot tolerate either sweet cream or ice cream. The ingestion of these high fat foods produces in such individuals a more or less severe attack of vomiting accompanied at times by abdominal pain. If this intolerance is once noted in a particular child, further attacks should be prevented by omitting the offending foods from the diet.

Many other foods, too, react upon some children in a peculiar way. Vomiting, abdominal pain, skin manifestations as hives or eczema, bronchitis or even asthma, are some of the common conditions, any one or two of which may follow the ingestion of a particular food to which the child is sensitive. This is called an allergic reaction, and will be discussed in a subsequent chapter (see page 276). The food which is known to affect the child in this peculiar way should be omitted from his diet.

If ice cream does not ordinarily upset the child it may be given as a dessert once or twice a week. The practice so frequently employed of offering the child ice cream in the afternoon is objectionable as if often spoils his appetite for the evening meal.

One or two small pieces of candy or a lollipop of good quality may be given the child as a special treat after he has finished his mid-day meal satisfactorily. Candy should not be eaten between meals as it too may impair the child's appetite.

During the past few years the growing knowledge of the importance of vitamines has stimulated their production in an artificial way by commercial houses. Their health giving properties are vividly described in the advertising columns of our newspapers and magazines and their praises are broadcasted over the air in word and song. The public has been made vitamine conscious. Many mothers have succumbed to the powerful suggestions on every hand and have of their own accord given bottle after bottle of concentrated vitamines to their children in the desire to build up their general health. They frequently erroneously look upon these preparations as tonics. Especially has this been the case with Vitamine D which is sold as Viosterol.

While natural foods contain vitamines in relatively low concentration, the artificially prepared vitamines are highly concentrated and should be used only in small quantities. While Viosterol is useful for the prevention and cure of rickets, especially when sufficient amounts of cod liver oil for this purpose cannot be tolerated, the indiscriminate use of this product as a general tonic or health builder over long periods of time is attended with a distinct risk. Viosterol and similar potent vitamine preparations should be used only under the supervision of a physician who will first determine whether there is a definite indication for their use in each individual

case. As has been previously mentioned, experimental work has shown that large quantities of Vitamin D may cause damage to the blood vessels by producing calcification.

The usual well balanced diet, with the addition of cod liver oil during the winter months, contains a sufficient amount of vitamines to insure normal growth in the pre-school child. There is no scientific basis at the present time for increasing this quantity by adding prepared vitamine foods or products to the diet of the normal child.

The diet of the young child should be prescribed by his physician at the time of his periodic health examination. The quantity to be ordered in each case will depend to a considerable extent on the type of child, his activity, his state of nutrition and measurements, especially the sitting height. The use of the latter measurement in the determination of the amount of food needed each day has been fully discussed in relation to infant feeding (page 104).

The following are sample diet lists calculated for the average normal pre-school child.

DIET LIST

From two to three years
Total 1200 calories or 1800 Nem

BREAKFAST

Fruit, Choose one:

- 1 large orange
- 3 tablespoons applesauce
- 6 cooked prunes
- ½ grapefruit
- 1 baked apple

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Cereal, $\frac{1}{2}$ cup: Take 2 teaspoons of cereal, 4 ounces of milk and 2 teaspoons sugar. Cook them for 40 minutes in a double boiler.

Milk, 1 cup

Bread, 1 slice $\frac{1}{4}$ inch thick

Butter, 1 teaspoon

DINNER

Choice of

$\frac{1}{2}$ cup vegetable soup or an additional
2 tablespoons vegetables

Meat or fish, 4 level tablespoons

Potato, 1 medium

Green vegetable, 6 tablespoons

Choice of:

Spinach

String beans

Green peas

Carrots

Beets

Bread, 1 slice

Butter, 1 teaspoon

Dessert, Choose one:

1 piece fruit
3 tablespoons stewed fruit
3 tablespoons pudding

Milk, $\frac{1}{2}$ cup

NOTE: The milk and bread and butter may be given at 3 o'clock instead of at dinner time.

SUPPER

Egg, 1

Bread, 1 slice

Butter, 1 teaspoon

Jelly, 1 tablespoon

Milk, 1 cup

Dessert, Choose one:

1 piece fruit
3 tablespoons stewed fruit
3 tablespoons pudding

DIET LIST

From three to four years
 Total 1350 calories or 2000 Nem

BREAKFAST

Fruit, Choose one:

- 1 large orange
- 3 tablespoons applesauce
- 6 cooked prunes
- $\frac{1}{2}$ grapefruit
- 1 baked apple

Cereal, $\frac{1}{2}$ cup: Take 2 teaspoons of cereal, 4 ounces of milk and 2 teaspoons of sugar. Cook them for 40 minutes in a double boiler.

Milk, 1 cup

Bread, 1 slice $\frac{1}{4}$ inch thick

Butter, 1 teaspoon

DINNER

Choice of

- $\frac{1}{2}$ cup vegetable soup or an additional
- 2 tablespoons vegetables

Meat or fish, 4 level tablespoons

Potato, 1 medium

Green vegetable, 6 tablespoons

Choice of:

- Spinach
- String beans
- Green peas
- Carrots
- Beets

Bread, 1 slice

Butter, 1 teaspoon

Dessert, Choose one:

- 1 piece fruit
- 3 tablespoons stewed fruit
- 3 tablespoons pudding

Milk, $\frac{1}{2}$ cup

NOTE: The milk and bread and butter may be given at 3 o'clock instead of at dinner time.

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SUPPER

Egg, 1
Bread, 1 slice
Butter, 1 teaspoon
Jelly, 1 tablespoon
Cereal, $\frac{1}{2}$ cup
Milk, 1 cup
Dessert, Choose one:
 1 piece fruit
 3 tablespoons stewed fruit
 3 tablespoons pudding

DIET LIST

From four to six years
Total 1600 calories or 2400 Nem

BREAKFAST

Fruit, Choose one:
 1 large orange
 3 tablespoons applesauce
 6 cooked prunes
 $\frac{1}{2}$ grapefruit
 1 baked apple
Cereal, $\frac{1}{2}$ cup: Take 2 teaspoons of cereal, 4 ounces of milk, and 2 teaspoons of sugar. Cook them for 40 minutes in a double boiler.
Milk, 1 cup
Bread, 2 slices $\frac{1}{4}$ inch thick
Butter, 2 teaspoons

DINNER

Choice of
 $\frac{1}{2}$ cup vegetable soup or an additional
 2 tablespoons of vegetables
Meat or fish, 4 level tablespoons
Potato, 1 medium
Green vegetable, 6 tablespoons
Choice of:
 Spinach
 String beans
 Green peas

Carrots
 Beets
 Bread, 1 slice
 Butter, 1 teaspoon
 Dessert, Choose one:
 2 pieces fruit
 6 tablespoons stewed fruit
 6 tablespoons pudding
 Milk, 1 cup

NOTE: The milk and bread and butter may be given at 3 o'clock instead of at dinner time.

SUPPER

Egg, 1
 Bread, 1 slice with 1 tablespoon jelly and 1 tablespoon cream cheese
 Butter, 2 teaspoons
 Cereal, $\frac{1}{2}$ cup
 Dessert, Choose one:
 2 pieces fruit
 6 tablespoons stewed fruit
 6 tablespoons pudding
 Milk, 1 cup

The Undernourished Child

The importance of good nutrition in childhood cannot be overemphasized. It is the very foundation of sound health. Upon it depends in great part the joy and happiness of living during the early years. The health of the future man or woman will be considerably influenced, too, by the state of nutrition developed in early childhood.

Before beginning to treat your child as undernourished, the diagnosis should first be definitely established. As we have previously noted, the weight and height do not tell the whole story. The nutrition may be satisfactory although the weight does not conform to the standards of the commonly used

charts. Parents are frequently unnecessarily concerned over the child's failure to meet the standard requirements. A complete examination by the physician is essential before the child should be considered a case of malnutrition.

In many instances, the appearance of the undernourished child reveals his condition. The thin, pale face, the drooping shoulders and sunken chest, the restless and irritable manner present an unmistakable picture of poor nutrition. Such a child is often very active but tires easily. Mother complains that he never sits still.

The deep rings under the eyes seen in some children, do not signify a poor nutritional state as is commonly thought. No one has conclusively demonstrated their real meaning. We believe that in such children water is readily lost particularly from the subcutaneous tissues underneath the eyes and this causes these rings. The condition is transient.

Organic diseases, accompanied by fever or decreased appetite, frequently accounts for the poor state of nutrition. In the absence of any disease an undernourished child should be treated intensively according to all the general rules of health with especial attention to diet and rest.

The guidance of the young child in developing proper feeding habits has been discussed. The diet of the undernourished child frequently must be concentrated as much as possible. Cocoa and sugar should be added to the milk; the cereal should be cooked thick with milk and sugar; soups should be creamed with milk and flour and desserts enriched with cream. By concentrating in this way a quantity

of food equal to that which is usually offered will contain a higher caloric value.

Sufficient rest and sleep for the undernourished child are essential. One and one half hours rest in bed after breakfast and again after lunch, with twelve hours sleep at night are the minimum requirements. Bedtime should never be later than seven o'clock. At first the child may find it difficult to rest during the day and fall asleep at night. He may toss and twist about for hours. In very difficult cases the physician may prescribe a sedative for a week or two until new habits of rest and sleep are established.

What has been said about the importance of fresh air and sunshine, exercise and recreation, cleanliness and elimination when the care of the normal child was discussed, applies with even greater force to the malnourished child.

IV

HABIT FORMATION AND MENTAL GROWTH

Changes in Mental Growth Between Ages of Two and Six—Personality of Child—"Plastic Period"—Intellectual Growth—Importance of Proper Physical Habits—Formation of Habits—The "Why" Stage—Gesell's Table of Standards—Definition of I.Q.

IF we compare the intellect and the ability of the toddler of two with the understanding and capacity of the child of six, the rapidity of mental growth during this short period seems amazing. At no time except during infancy, is such swift progress made. At the age of two the child is in a state of almost complete dependence on others for his physical care and social activity. By the age of six he is able to feed, wash, bathe and dress himself, and to make social contacts in the world outside the home. The clumsy manipulation of the kiddie car has now given way to the more complicated operation of the bicycle. A vocabulary of several hundred words, equipping him for intelligent conversation, has taken the place of a few simple phrases and sentences. A special capacity for artistic, creative work, discovered early, and carefully developed, may by this time have shown promising results. Above all, the child has revealed that individual, innate power of comprehension and reasoning, which we term natural intelligence.

In the course of this growth, certain feelings and emotions have been called into play. The young child has, on various occasions, experienced feelings of pleasure, fear, anger, jealousy, destructiveness and inferiority. These feelings have thrust themselves upon the consciousness of the child at different times and in varying situations. His emotional tendencies, his mental powers, his social attitude, his environment and guidance have determined his personality. At the age of six this personality is well defined and represents to a considerable extent the future man or woman. In the course of years new conditions in the environment may produce some alteration but the basic elements of character and personality have been formed before the child enters upon the school period. Difficulties arising a little later from the child's character traits may be adjusted by proper guidance and supervision but his personality usually remains the same.

It is during this very important plastic period in the child's development that mothers have the opportunity to spend a great deal of time with the child and so mold his character. If they grasp this opportunity to help him build a fine, rich personality his chances for future happiness and successful achievement will be much increased.

As in infancy a large part of the intellectual growth of the young child depends upon his innate curiosity and his love of imitation. The pleasure which the child derives from a task well done and the approbation accompanying this success also play an important role in stimulating the child to further progress.

In response to these impulses, the child engages in all kinds of activities. He observes and touches many more objects in his environment than was possible during infancy. He takes things apart and tries to put them together again. He imitates, often minutely, the manners, the conversations, the intonation of voice, of the people about him. Their emotional tendencies too and the whole spirit of the household are absorbed by the mind of the growing child and reflected in his behavior.

In the course of these activities the child forms certain habits. These habits include not only his ways of doing things as washing, dressing, playing etc., but also his manner of thinking as shown in his attitude toward such questions as honesty and fairness. The child's attitude toward other members of the household become in time also largely dependent on habit. All through life the important part played by habits in shaping one's actions and thoughts is unmistakable. As the years go by, these habits assume increasing force often being the deciding factor in critical situations. When we say "it's just like him to do that" or "it's against his nature to tell a lie" we are simply referring to habits of action and of thought.

Habit formation begins, as we have previously noted, at the time of birth. The methods of guiding the infant in the development of habits relating to his more simple existence have been described. At the age of two, proper habits concerning sleeping, eating, elimination and working should be well established.

As the sphere of activity of the young child ex-

pands during the ensuing years an increasing number of new habits will be formed. Whether these habits will be desirable or undesirable will depend to a large extent upon his proper guidance.

The atmosphere of the home is an important factor in determining the child's habits. It is most essential that the actions of the people surrounding him should be worthy of imitation. Parents and nurses should always bear in mind that every word uttered, every action performed in the presence of the child leaves a much deeper impression on his mind than is ordinarily realized. Weeks or months later these may be repeated by the child to the complete surprise of the grown-ups. Parents should not quarrel or discuss their serious troubles in the presence of the child. A contentious or gloomy atmosphere may be more damaging to the child's whole make-up than the neglect of his physical care. A wholesome, cheerful spirit on the part of those with whom the child comes in contact will do much to develop desirable habits of thought and a healthy attitude.

Habits are formed by the repetition of actions and thoughts when the same conditions occur. A child develops the habit of dressing himself every morning by putting on one article after another in a certain order. After going through this same performance each morning for several days the formation of a habit is well on its way. The more often he dresses himself in a given order the more probable will it be that he repeats this order. After a while this procedure becomes automatic.

In the realm of thought and ethical standards,

habits are developed in a similar way. A child who in his early social contact with other children learns to play the game fairly, soon finds himself unable to be anything but fair. Fairness in his dealing with others becomes a habit like orderly dressing in the morning.

It is obvious that during this plastic period of the child's life every opportunity for the formation of desirable habits should be grasped.

To make a desirable habit permanent often requires something more than mere repetition. The emotional aspect of the child's mind must be called into play. If the child experiences the feeling of pleasure or of satisfaction in the performance of a particular act or in a wholesome mental attitude, the development of the habit becomes a comparatively simple matter. The pleasurable feeling accompanying or following the act becomes the impulse for its frequent repetition and permanent habit formation.

For the development of such common habits as walking and talking, the power of locomotion and expression is a sufficient stimulus. For the development of other desirable habits, the mother can, by arousing feelings of pleasure in the child, accomplish a great deal. A sincere expression of approval, a few words of praise or an appropriate reward will go far in encouraging the repetition of a desirable action. On the other hand, impatience on the part of mother, a harsh or unjust criticism, or an unfavorable comparison with another child will often discourage the child from further effort. If such methods are continued the feeling of inferiority of

the young child will become intensified and may lead to serious behavior difficulties.

While the formation of desirable habits comprises an important part of the mental growth of the young child other aspects of this growth deserve our consideration. Knowledge is acquired through the child's experience in observing and handling the objects in his environment in response to his expanding curiosity. Thus the child becomes aware of a simple object such as a vase. He observes it and handles it. He is told the name of it. In this way mental associations are developed.

Another source of knowledge is that derived from questioning. In the early stages of questioning, the child is interested in objects themselves. Later this interest turns to the use of objects, to the way they are made, and to interest in the one who made them. The parents should take full advantage of this manifestation of the child's natural curiosity to increase his fund of information regarding the common things of everyday life. Parents are often prone to take it for granted that such knowledge will just "come naturally." It is surprising to see the large numbers of children entering school who display an ignorance of the simplest facts. Parents should answer all questions put to them by the child whenever such questions are actuated by a real desire for knowledge. The child can also be directed to find out for himself. Thus if he says to his mother, "What is a camel?" she may say, "There is a picture of one in your story book. Wouldn't you like to look at it?" By a study of the picture he finds out

not only how a camel looks, but also that a camel lives in a desert and that a desert is a sandy place. He and his parents discuss camels and deserts. During the course of the discussion the idea of an oasis develops. The tot of five has learned a great deal about deserts, oases and camels because of his simple question and his mother's intelligent direction.

Not infrequently, however, during the "why" stage of the child's life, and this "why" stage is bound to come to every normal child somewhere between the ages of two and six, question after question is asked in rapid fire succession. Parents must distinguish between those that are merely asked as an attention getting device and others which are actuated by a real desire to learn. In the former type of interrogation, after the first question or two is answered the mother should direct the attention of the child to other lines of thought or suggest some other occupation. Never should the mother say, "Don't bother me," nor should she show any impatience at these questions. Such impatience on her part may stem the tide of questions for all time. Thus is a valuable source of learning lost and the understanding between mother and child is impaired.

Differences in mental capacity may often be recognized in early childhood. Parents must realize that just as there are variations in physical strength, there are also variations in mental power even among normal children. The inherited potentialities of mental growth are as real as those of physical growth.

The mental growth of the pre-school child as well

as that of the infant has been intimately studied by Dr. Arnold Gesell,* of Yale University. The following table of standards is taken from his book on "The Mental Growth of the Pre-School Child" and is of interest in that it shows in a general way the steps in mental development. These "Normative Summaries" present in a schematic brief way the average achievement of the normal child along four directions: the acquisition of motor control, of language, of adaptive behavior and personal social behavior. We have previously summarized Gesell's standards for infants and therefore include here those of the two to five year age group only.

Two Years

Motor Characteristics

- Draws a vertical stroke imitatively
- Plays a simple catch and toss with ball
- Can operate a kiddie car around a chair

Language

- Uses simple sentences and phrases
- Names familiar objects like key, penny, watch
- Distinguishes in and under
- Points to seven of ten simple pictures

Adaptive Behavior

- Builds a block tower of three or more
- Places three blocks in form-board
- Folds paper imitatively

* Dr. Arnold Gesell, *The Mental Growth of the Pre-School Child*, pp. 382-384.

Personal-Social Behavior

- Bladder control established
- Listens to stories with pictures
- Tells experiences
- Asks for things at table by name
- Likes to play in sand, filling and emptying

THREE YEARS**Motor Characteristics**

- Draws a circle from copy
- Draws a horizontal stroke imitatively
- Creases a piece of paper neatly
- Aligns a card to an edge

Language

- Uses pronouns, past and plural
- Names three objects in a picture
- Can tell simple stories
- Distinguishes prepositions, in, under, behind

Adaptive Behavior

- Builds bridge imitatively
- Builds block tower of four or more
- Discriminates between two short lines
- Combines two parts of severed picture

Personal-Social Behavior

- Can open door
- Can carry breakable object
- Asks questions of elders
- Puts on shoes

FOUR YEARS

Motor characteristics

Draws cross from copy

Traces diamond path

Hooks fish in 15 or 30 seconds with right or left hand

Language

Distinguishes four prepositions

Uses descriptive word with pictures

Repeats twelve syllables

Adaptive Behavior

Folds paper diagonally

Draws three completions in incomplete man

Completes patience picture

Puts two blocks in cup

Personal-Social Behavior

Uses building material constructively

Buttons clothes

Goes on errands outside of house

Washes self

FIVE YEARS

Motor Characteristics

Draws triangle from copy

Draws prism from copy

Hooks fish three times in one minute

Language

- Defines words by use
- Knows three or more words in vocabulary list
- Interprets humor
- Speaks with noninfantile articulation

Adaptive Behavior

- Builds keystone gate
- Completes four of eight forms
- Discriminates weights
- Performs three commissions

Personal-Social Behavior

- Draws recognizable man and tree
- Laces shoes
- Puts on Coat and hat alone
- Uses play material with advanced constructive-ness
- Replaces material in box neatly

Other tests have been formulated which attempt to appraise with greater precision the native, constitutional, intellectual, capacities of children. The result has been expressed as the intelligence quotient. It is obtained by dividing the mental age by the chronological age. This is clearly explained by Gates in his "Psychology for students of Education." Tests are given which determine the mental age of the subject at the time the test is given. If a 10 year old child earns an M. A. (Mental Ability) of 10 years, we can determine by dividing his mental age of 10 by his chronological age of 10 that his

I. Q. is $1\frac{1}{10}$ or 1.00. In reading I. Q.'s, the decimal point is usually disregarded. Thus we say this child has an I. Q. of 100. The child of 10 years who earns an M. A. (Mental Ability) of 14 years would have an I. Q. of $1\frac{4}{10}$ which equals 1.40 or 140. In the same way a boy of ten years who earns an M. A. of only seven years would have an I. Q. of 70. I. Q.'s have been known to range all the way from 0 which is that of an idiot to 187 which denotes an exceptionally high intelligence, and is very rare.

To be of any value these tests must be given by trained psychologists. Their practical value is found chiefly in educational work with school children where their use can assist the teachers in grading the pupils properly.

For parents, the knowledge that such inherent differences in mentality among children do exist, should make it clear that comparisons between children should never be made in their presence. Such comparisons may cause damage to the emotional life of the less favored child in increasing his feeling of inferiority and probably also of jealousy, and may have a far reaching influence on his immediate behavior and future development. This comparison by the parents is also harmful to the child of higher intelligence for it may engender an unwholesome feeling of superiority which may lead to anti-social behavior.

V

CHILD GUIDANCE AND BEHAVIOR PROBLEMS

Problems Arising from Modern Conditions—Parent-Child Relationship—Proper Direction of Primitive Instincts—Anti-social Behavior—Obedience—The “No” Stage—Parents’ Attitude—Feeling of Security—Oversolicitude of Parents—Pampering—Control of Fear—Unnecessary Fears—“Benevolent” Fears—Jealousy—Anger—Destructiveness—Good Habits for Bad—Nail Biting—Eye Blinking—Facial Grimaces—Left-handedness—Lying—Stealing—Punishment—Approach to Sex Education—Companions—Toys—Books—Cultural Interests.

THE modern age has witnessed unprecedented advances in scientific knowledge. In the field of medicine the physical care of the child and the prevention of the diseases of childhood have received a large share of the benefits of this progress. As a result infant and child mortality and the incidence of many childhood diseases have steadily decreased.

The recent trend toward the small family has made the modern methods of child hygiene easier of application. The mother with one or two children can give them more adequate physical care than is possible when her attention must be divided.

When we turn from the physical care to the mental guidance of children, we find that our modern ways of living have given rise to a number of new problems. As an example we may cite the difficulty in mental guidance which so much more often con-

fronts the parents of an only child than parents of four or five children, as in this case each member of the family group soon learns to make the social adjustments so necessary in everyday life. In the latter case, desirable qualities of fairness, unselfishness and co-operation are more readily acquired by the child through his early contact with the other children. To achieve like results with an only child, or even with two, often requires a rigorous self-discipline on the part of the parents for there is a great temptation to shower the child with an undue amount of attention.

Another development of modern times which makes the rearing of children difficult, particularly in the large cities, is our huge apartment house with its small compact rooms. To restrain the healthy, active, spirited child in such a cramped environment requires much more patience and knowledge than that which was needed in former times when there were plenty of space and privacy. The close proximity of the dwellers of the present day apartment house and the lack, in many instances, of sound-proof walls frequently force the mother to resort to restrictive measures for the protection of the neighbors from the noise of the child's healthy activity.

The custom, common among many families, of moving every year or two, from one neighborhood to another, often disrupts the child's friendships. At each new abode he must seek new congenial companions which is not always an easy matter. This is a problem that parents must frequently solve if the child is to be guarded against boredom and its accompanying restlessness. The child needs the com-

panionship of others of his own age if he is to live a normal full life.

The tremendous increase in the number of automobiles on our streets and highways has made the mental as well as the physical care of the child more complicated. The ever present danger of accidents has made restrictions to his free play in the outdoors a necessity. The constant look out for danger is a mental strain for both mother and child.

The proper guidance of the young child under the many adverse conditions of our modern civilization requires a great deal of intelligence, patience and study. It is not a job for which all parents are by nature well equipped. The importance of devoting more attention to the mental aspect of child growth is slowly but surely becoming more generally recognized.

The thoughts and emotions of the child are certainly as much a part of him as his respiration and digestion. The mother makes every effort to guard the child against pneumonia or an intestinal disorder. If either develops, medical advice is promptly sought and no energy or expense is spared to effect a recovery. Are not temper-tantrums, cruelty, lying or stealing diseases that call for preventive and curative measures? With the proper mental guidance of the young child, much can be accomplished in the control of these manifestations.

This control is essential not only for the mental health of the child himself, but also for the protection of society as well. Sufficient evidence has been gathered to show that these early manifestations of anti-social behavior, if neglected, may lead to lawless-

ness and criminality in later life. The tremendous increase in our prison population during recent years is without doubt a reflection upon our faulty methods of child training in the past. The fact that a large number of our prison inmates are very young, hardly out of their "teens," is especially significant. Delinquency and crime are not social diseases of the needy poor classes alone. They are found among the middle class and the rich, among the college graduates as well as the untutored. It behooves all parents to give serious thought to the problem of child guidance if we are to stem the swelling tide of recklessness and crime.

Of course it is only a small number of children showing early evidences of anti-social behavior that will, if neglected, end their careers behind prison bars. Others may go through life always on the verge of criminal activity, in business, in politics and in the professions. Still others will grope in the darkness of indecision, showing evidences of mental conflicts and fears, in neurotic tendencies. All these less obvious and often unrecognized deviations from a normal social attitude can be frequently prevented by early wholesome influences. The first and most essential requisite in child guidance is the establishment of a proper parent-child relationship.

The Parent-Child Relationship

Parents should realize that their child is a person with thoughts, emotions and understanding. All the daily happenings in his environment leave a definite impress on the child's mind. His feelings of pleasure,

pain, fear, anger, jealousy are just as real as those of adults. The child has his problems too. His toy electric train may fail to start one morning or the captain of the midget baseball team may refuse to allow him to play in the big game. Now these problems may seem very small and unimportant to the busy mother who may cut the child's story short with a brief, "Oh, don't bother me about those things," but they often loom large in the mind of the young child. Such a reply will make the child feel the presence of a wide gap between his mother and himself. He will hesitate to go to her again with his troubles and his confidences. Years later this same mother may be terribly chagrined to learn that her son decided to leave high school without having even discussed the matter with her. She lost her opportunity of becoming a real friend of the boy during his early childhood. The mother's guidance of the child failed because of her indifference to his everyday problems. These problems, no matter how trivial they may seem, should always receive a sympathetic hearing.

The child should feel that his parents are always ready to discuss his difficulties with him in an earnest and sincere way. The child's ideas and emotional reactions should be treated with the same respect that parents expect of the child. Mutual understanding and respect are the foundation of a proper parent-child relationship.

Many parents lose sight of the fact that the child, though possessing an individuality of his own, has not yet had the wide experience, the education and the social contacts necessary for mature judgment. They expect him to act in accordance with their own

preconceived ideas and they show impatience at his failure to do so. "Such a dumb thing to do" is a phrase that all too frequently greets the child. This attitude on the part of the parents can only tend to increase the child's feeling of inferiority and to discourage his initiative.

The young child's actions and emotions are still under the strong influence of his primitive instincts. These instincts are primarily intended for self-preservation. The child's natural tendencies, then, impel him to direct his actions toward the satisfaction of his own needs without any consideration for the needs of others. His natural behavior is largely dominated by the feeling of pleasure. Whatever produces pleasure he seeks, and whatever causes pain or discomfort he avoids. Therefore, the natural primitive impulses of the child have a strong tendency to make him selfish, aggressive, pleasure-seeking. It has been aptly said that the child is really born for the jungle but finds himself thrust into a highly developed social organization. All this has a very important practical bearing upon child guidance. When mother sees three year old Johnny consume not only his own ice cream cone, but also that of his unsuspecting sister, she throws up her hands in horror at the selfish creature she has brought into existence. But mother should know that this trait of selfishness in her child is natural and commonly observed in children of this age. Mother should discuss the incident with Johnny alone and in doing so, she should show no evidence of anger. In a very friendly manner she should explain the unfairness of his act in that sister was deprived of her ice cream cone,

and he should be reminded of the fact that he would not be pleased if sister acted in a similar manner toward him. In such a way the child can be taught to feel the satisfaction and pleasure that follow right social behavior. If, in the future, a similar situation arises and if Johnny displays a co-operative and generous spirit, the mother should express her approbation. In many children the pleasure derived from such attention is an incentive to repeat the praiseworthy act.

When Tommy at the age of four is filled with a desire to hit every child he meets, mother need not be unduly alarmed about her son's apparent cruelty. This manifestation of a primitive instinct is not at all unusual among children of this age. Of course this anti-social behavior must be corrected. These aggressive animal spirits can often be satisfied by providing the child with a punching bag which he can pound to his heart's content. The exercise moreover will help his muscular development. The mother has substituted for the brutal activity of punching other children a social and healthy play. Such a diversion of a primitive instinct is called, in modern psychology, sublimation.

If parents understand that the tremendous activity and restlessness usually present in the young child require, not repressive methods, but proper avenues for expression, many of the annoying disturbances in the home will be avoided. Parents often fail to realize that while they themselves may be tired or worried, the child may be in the mood for some jolly recreation. What happens too frequently is that the child is unfairly scolded or severely punished when

he gives expression to his perfectly innocent desire for play. This procedure of "letting it out on the child" which tends to embitter him against the ways of the world should be carefully avoided. It is obviously unjust.

Another practice distinctly harmful to the emotional development of the child is that of discussing the child's behavior with others in his presence. If the child hears his praises sung he will be apt to become self-conscious and self-centered, to "show off" at every opportunity. If on the other hand the child hears his mother complain that, "Bobby is so bad I just can't manage him," Bobby decides that he might just as well continue his naughty pranks because of his mother's inability to handle the situation. If the child is present, under no circumstances should he be the subject of conversation. Some mothers realizing this, may lower their voice to a whisper. Needless to say this is just as bad for the child, for if he is of normal intelligence he will suspect that he is the subject of conversation. In fact, whether the conversation deals with the child or some other subject to be concealed from him, whispering should be taboo.

One of the great problems in child guidance is the parent's attitude toward obedience. The pendulum of thought on this subject has swung from the rigorous discipline of our ancestors that demanded the most abject obedience, to an extreme laxity during the period following the Great War when obedience to parental authority in many homes was entirely unknown. The present tendency is a swing back toward the mid-line.

For the formation of a desirable personality, a strict discipline which imposes blind, uncompromising obedience is unquestionably harmful to the child. Such an absolute obedience can be secured only through fearsome and terroristic methods. Such methods tend to destroy independent thinking and initiative in the child and warps his emotional life. Under such a regime the child is likely to become shy, timid, introspective and submissive. Contentment and happiness are impossible when his behavior is motivated by fear. A real companionship between parent and child, so desirable for the latter's emotional development, cannot thrive in such an atmosphere of rigid discipline.

Children should be obedient willingly and cheerfully on the basis of respect and confidence. The child is not born with any tendency toward obedience. On the contrary, his primitive instincts are all asocial. Parents should not as they sometimes do, demand obedience merely to satisfy their idea of ownership of the child. Bombarding the young child with requests "to do this" or "not to do that" during a large part of the day is a pernicious practice that mother should carefully avoid. It is unfair to expect the child to submerge his own desires to every whim of mother. This habit of nagging the child defeats its own purpose, for the child soon disregards all demands.

Before making a request the mother or father should make certain it is a legitimate and necessary one. It is wrong to demand the impossible. Mother should not expect a normal, healthy, active child of four to sit still on a chair while she discusses some

topic of no interest to the child with a friend, nor should she expect him, when in the midst of an exciting game, to discontinue playing at the first sound of her voice. Strange to say such requests as these are made very frequently. The child feels the injustice keenly. If these unfair demands are often repeated he loses respect for the opinions and wishes of the mother.

Let the necessary requests be few, but once made, obedience from the child should be expected. The child may be told the reason for the request but no long discussion should follow. If the child does not obey, he should be punished. The methods of punishment will be discussed later. Punishment, however, is rarely needed where the training of the child has been well directed.

There is one period through which most young children pass which demands an unusual amount of patience and intelligence on the part of the parents. This is the negative phase, a normal development in the course of the child's mental growth during which his response is "no, no, no" to every request and suggestion. If parents will realize this is but a temporary, normal stage lasting but a few months they need not be alarmed by it. During this period of negativism, the child should not be subjected to stern disciplinary measures, but should be handled with tolerance and "watchful neglect."

There is probably no one single practice that is more injurious to the wholesome mental guidance of the child than a discussion in his presence between mother and father revealing differences of opinion in regard to his behavior. The child becomes con-

fused as to what is the correct conduct and often loses respect for the opinion and demands of one or both parents. Naturally the child will lean toward that parent who favors him. The combination of a strict, stern father and an oversolicitous mother or vice versa may produce havoc in the emotional life of the child. All differences of opinion on child guidance should be settled by the parents in private. Neither parent should ever counterman a request or a prohibition of the other. If mother tells Tommy that he is not to have a second portion of cake and Dad promptly gives him the second portion, the next request or prohibition on the mother's part is likely to be disregarded by the child. In case a nurse takes charge of the child, the parents should likewise not contradict her commands in the presence of the child. Any correction of the nurse on the part of the parents should be done in private.

Honesty in all the parents' relations with the child is essential if this desirable trait is to become an integral part of his personality. Under no condition should he become aware of any deviation from the truth in the expressions or actions of his parents. If the child learns that his parents resort to this form of dishonesty in their dealings with him or with others, it is more than probable that he will soon develop the habit of lying. The child's questions should always be answered truthfully. If the parent does not know the correct answer to a question it is far better to express his ignorance than to mislead the child with a meaningless or an untruthful reply. In such a situation the most satisfactory procedure is to direct the child to a proper source where he can

find the answer himself or if the child is too young for this, the parent should volunteer to find the desired information. All promises made to the child should be kept. Too often mothers bribe children with promises that cannot be fulfilled. In doing this, two serious errors are committed: the offer of a bribe as well as the breaking of a promise. If parents desire the confidence, friendship and respect of the child, they must zealously guard against the use of such practices.

A feeling of security and of being wanted is a prime need of every child. In time of stress and economic depression parents should make every effort to conceal their own feelings of insecurity from the child. If these feelings are communicated to him, the effect upon his sensitive emotional life may be much more disastrous and far reaching than the adult realizes. In the child these feelings may give rise to various neurotic manifestations and may influence adversely his growing personality.

The child needs the affection of his parents but this feeling should be demonstrated in an intelligent, wholesome way. Parents should not continually hug and kiss their child. The normal child does not usually crave this over-abundance of affection unless the mother or father has actively stimulated the desire. Excessive fondling and kissing may arouse the child's sexual desires prematurely.

Affection may be shown the child in mother's loving care and attention to his physical needs, in her interest in his everyday activities and in providing him with wholesome recreation. If in addition she

occasionally embraces him, he will receive sufficient evidence of her love.

The oversolicitous mother by showering too much attention upon the child may have as undesirable an influence upon his mental development as that of a neglectful parent. Selfish, grumbling, self-centered children are often the result of over anxiety on the part of the mother. The child soon senses this attitude and is quick to take full advantage of it. All sorts of pains and aches are summoned up to aid him in arousing the mother's sympathy and anxiety. The seeds of this unwholesome parent-child relationship are often sown during an illness of the child and the convalescence following it. The necessary care and the natural anxiety on the part of the parents during such a period are enjoyed by the child and a desire for their continuance often persists. The parents must carefully guard against such a relation. Oversolicitude on their part may have a harmful influence on the child's character. Many children reared in such an atmosphere become neurotic and self-centered adults inadequately fitted for life.

The damaging influence of pampering upon the mental growth of the infant has been previously stressed. Its effect upon the child of pre-school age is equally bad. Parents who make a practice of satisfying the child's every desire are soon confronted with a serious problem. The child's demands become too numerous to satisfy. Disgruntled and unhappy at his failure to have his wishes fulfilled, the child is likely to display his anger in anti-social behavior such as crying, yelling or temper-tantrums. The effect of

pampering or "spoiling" the child is more keenly felt during periods of economic distress. When the parents suddenly find that their expenditures for the child must be curtailed, the reaction of the pampered child to any deprivation of his accustomed comforts and pleasures is likely to be very disturbing to the rest of the household. Early in life the child should learn that all his wishes and desires cannot be fulfilled. This will prevent much unhappiness in his future life. He will be prepared to meet disappointment courageously and without any emotional disturbance.

Fear, Jealousy and Anger

The important role that various emotions play in the life of the child is not always fully appreciated by parents. Fear, jealousy and anger are powerful forces which well up in the child's consciousness from time to time and change his whole personality. These emotions, if improperly directed may be more dangerous and harmful than measles or whooping cough. The symptoms of an emotional disturbance may be less obvious than those of a contagious disease, but they often last much longer. The emotional life of the child certainly demands the same study and care that is given to his physical welfare. All too often this is neglected. Unnecessary fear, harrowing jealousies and raging anger are frequently the result of improper parental guidance.

We have already discussed the evil effects of arousing the child's fear of punishment in order to secure his obedience. Such common fears in children

as those directed against the policeman, the doctor, the beggar and the bogeyman, all have their beginning in the thoughtless remarks of a grown-up. The fear of domestic animals, of thunder and lightning and of darkness are aroused in the child either through the conversation of adults or by the child's observation of fright displayed by grown-ups.

Many unnecessary fears are aroused in the child by the warnings of the oversolicitous mother. When Johnny hears his parent repeatedly say, "Don't play ball because you may get hit in the eye," or "Don't run because you'll fall," or "Don't rush up the stairs, you may trip," it is not unlikely that before long Johnny will develop fears directed against perfectly healthful exercise and recreation.

Gruesome stories and exciting movies often arouse feelings of terror in the child which may be reflected in unusual behavior. The mother often is perplexed by the sudden change in her child's conduct, not realizing the cause of it. Unwholesome literature and all movies with the exception of those adapted to children should be taboo.

All these disturbing fears serve no useful purposes. On the contrary they tend to narrow the child's interests and sphere of activity. If parents will bear these facts in mind they will carefully avoid the kindling of any unnecessary fears in their child's emotional life.

The guidance of a child that has experienced an intense fright demands special attention. The fright may have resulted from witnessing a horrible accident, from reading about one or from imagining a gruesome or frightful scene. In any case, the thought

of the incident often persists as an active disturbing factor in the child's mind. His frightened look and actions reveal his turbulent emotions. Such a situation in the child's life is too often incorrectly met by the mother with a casual remark, "Don't be silly, forget about it." It is far better that the child be permitted to talk about the incident than keep it locked up in his mental content. By describing the event he becomes more familiar with it, and the more familiar he becomes with the event, the less terror it holds for him. The emotion itself is given an outlet instead of being repressed. To express it in modern parlance, let the child "get it out of his system."

Our modern ways of living have given rise to many real dangers that beset the child on every hand especially in the large cities. The congested streets, the heavy automobile traffic, the crowded subway platforms have created new problems. It has become necessary to arouse certain fears in the child for his own protection. The fear of being run over by a passing automobile, of being thrown from a subway platform, of contracting whooping cough from a child afflicted with the disease are examples of fears that must from time to time be nurtured in the child for his own welfare. These "benevolent" fears should be as few as possible, consistent with adequate protection.

The large part that jealousy plays in the adult world is well known. It has been the theme of many powerful dramas in real life as well as in the arts. In the world of childhood, jealousy also plays its

part. When Jane tells you that she "hates" her little brother and some day she's going to kill him, she probably unconsciously is jealous and is expressing her jealousy in this way. But Sally who is not as outspoken as Jane merely becomes irritable, sulky and moody, and mother cannot understand the reason. If parents are to guide the emotional development of the child they must realize that jealousy may exert a powerful influence on his personality and behavior. This emotion, unlike others, is frequently unrecognized by the child himself and, if recognized, often not admitted.

For the parents to detect this emotion as the underlying cause of the anti-social behavior of the child, sometimes requires considerable observation and study.

Under no circumstances should parents by making unfavorable comparisons with other children, by an unequal distribution of their attention, or by disparaging innuendoes, fan the flame of jealousy in the young child.

Anger is an emotion which may be aroused in the child not only by people and situations in the environment but by his own failures as well. If while building a bridge of blocks it begins to totter, the child may display anger at his own error by throwing down the whole structure. The child should learn to control this type of emotional response early in life. As situations capable of provoking such responses are constantly recurring during his daily activities, the child may soon acquire a habit of anger response to failure or disappointment. If carried into adult

life such a habit will be a stumbling block to successful achievement. The control of this expression of anger should be based on the child's realization that control is more advantageous to him than a violent outburst. If after the bridge building incident, the mother makes it clear to the child that a little manipulation would have saved the bridge while his rage brought only destruction, the child will on the next occasion be less apt to repeat the performance.

Anger is often aroused in the child by a feeling of jealousy. In such a case the cause of the jealousy must be discovered and by wise direction brought under control. The anger itself requires no treatment. It will automatically disappear when the jealousy is controlled.

In the young child the most common cause of a demonstration of anger is the thwarting of his primitive instincts or of his desires. These outbursts of anger are naturally more likely to occur in the pampered child who is accustomed to have his own way.

The demonstration of anger often takes the form of the temper-tantrum which usually consists of screaming, kicking and stamping the feet. At times other violent actions are included as slamming the door or throwing things around the room. These explosive outbursts are more likely to occur when the child is fatigued from overactivity or insufficient sleep.

In the management of the temper-tantrum the child must be clearly shown that his violent antics are not advantageous to him. The parent should pay no attention to his demonstration, neither bribing him to stop nor "giving in" to him on the point in ques-

tion. The child will soon learn that such temper-tantrums are of no avail, and he will cease to resort to them.

Destructiveness

That many children have a tendency to destroy is well known. That children are not naughty just because they destroy is not so well known. Rarely is destructiveness in a child "naughtiness." The child destroys most often because of his instinct of curiosity. He wants to see what is inside "that music box" and "what makes the wheels go round."

The child sees no difference between taking his toy apart and breaking father's watch to observe the mechanism within, for he does not yet know the value of things. He should not be punished when he does this. He should be given the kind of toys that he can pull apart and put together again and gradually taught the difference between what he may investigate and what he may not.

Occasionally a child is destructive because of some mental conflict. Something is bothering him, he knows not what, and his emotions must have an outlet. The wise parent seeks to understand the cause of the wave of destructiveness as it is only by removing the cause that it can be controlled.

Good Habits for Bad

If proper methods for the guidance of the infant and of the young child have been regularly followed the problem of eradicating bad habits will arise. The child's whole intellectual and emotional structure

should be built upon a foundation of good, wholesome habits. However, if this has not been the case, and parents are confronted with such a problem, the process for re-education should consist of substituting good habits for bad ones. This cannot be done effectively by merely moralizing with the child. His active interest must be aroused in bringing about this substitution. This can be done only if he recognizes that he himself will have some advantage from making the change. The parent's approbation and praise are sometimes sufficient. A reward such as a gold star on the "good days," special treats in the form of trips to the museum or the zoo or an appropriate toy may be offered the child as an indication of the parent's appreciation. Neither the reward nor the promise of a reward should be given in advance of the good behavior. This is bribery to which one should never resort in the training of the child.

Even when a wholesome, intelligent regime is carried out in the rearing of the child, bad habits may occasionally crop up. Nail biting, blinking of the eyes and facial grimaces are habits which are observed among nervous, active, high-strung children. Treatment should first be directed to the underlying conditions. It is very necessary that the daily hygienic routine of the child, including the hours of rest and sleep, fresh air and exercise, diet and elimination be strictly observed. In her further endeavor to change these undesirable habits the mother may appeal to the child's vanity. The attractiveness of well shaped nails, of a pretty face without the ugly grimaces, should be stressed. All efforts on the part of the child to control these habits should be met

with encouragement. For nail biting, neither restraining devices for the elbows, nor drugs applied to the nails should be used. Finally, but most important of all, the parents should not continually urge the child to stop the undesirable practice. Often this nagging only intensifies the habit. The child may persist in it as an attention getting device or he may become so antagonistic due to the frequent reminders that he may entirely refuse to co-operate.

It is important that parents should differentiate between certain natural tendencies which do not require correction such as left-handedness and undesirable habits. The fact that many mothers do not realize that this trait is a natural one in some children is the cause of much unnecessary difficulty. If a child is left-handed no attempt should ever be made to change this natural propensity. Recognized authorities believe such attempts may, in many instances, lead to stammering and to reading disability.

Lying

Lying and stealing are bad habits, the origin of which may be somewhat different from that of other undesirable habits. The latter are usually formed by the repetition of reprehensible acts. Lying and stealing may have their inception in actions which are not in themselves at all undesirable. The child at the age of two or three may relate a story woven out of his imagination and which he cannot distinguish from reality. This requires the most skillful handling on the part of the mother. She should listen to the child's story with interest, sympathy and understand-

ing and then, not with disapproval but rather in the spirit of fun, she should suggest "This is just a make-believe story, isn't it?" When stories are told to her, the mother should always raise the question as to whether it is a make-believe one or a real one and in this way the child will gradually learn to distinguish truth from untruth. If this is not done the child may continue in his fabrication and in this way may develop the habit of lying. It may be suggested to him that he preface his make-believe stories with some explanation such as "I would like to tell you a make-believe story." Care should be taken that the child's imagination be not unduly curbed. Imagination is a precious gift that should be encouraged, for upon it depends all creative work.

In homes where severe and unjust punishment is meted out to the child, or where threats are resorted to in order to secure obedience, lying is employed by the child as a protective measure. If Tommy knows that a spanking awaits him for having helped himself to some goodies out of the ice box, he may, on being questioned by mother, deny ever having been near the ice box. If, however, Tommy knows his mother will not inflict any severe punishment, he will be much more likely to confess. Parents should not make truth telling too hazardous for the child. They must not expect him to understand the ethical value involved in the ideal of truth. They should rather guide his course so that he learns that truth telling is advantageous to him. If in a difficult situation, the child confesses his misdeed, he should be praised for his honesty, even though he is later reprimanded for the deed. In this way the edge of the reprimand will

be smoothed by the approbation of his truth telling and he will learn that "honesty is the best policy."

For the development of the habit of truth telling, the importance of an attitude of honesty in the home cannot be overemphasized. Honesty is not an inherited trait. The child's viewpoints upon this subject will be determined, in a large part, by what he observes around him. If Johnny knows that mother sometimes instructs the maid to say she is out when it is very apparent to him that she is not; or overhears mother who is in the best of health pleading illness in order to cancel an engagement, she should not be surprised when she in turn overhears sturdy little John confiding in his friend that "I am very very sick—guess I got to have an operation."

When promises are not kept and threats are seldom carried out by the parents, the child must necessarily become confused regarding the importance of truth in his daily life. A spirit of honesty and truth must pervade the home if the child is to integrate these desirable traits and his personality.

Stealing

Stealing in a child often strikes terror in the home. Parents become so emotionally upset that they usually pursue the wrong course. They either try to protect the child by flatly denying his pilfering or they proceed to inflict severe punishment on the young culprit. Both methods are unquestionably harmful. From the first course the child learns the value of lying as an aid to dishonest conduct. The second method is in most instances unjustified and never

solves the problem. Before learning the underlying causes of the child's misconduct there can be no indication for any form of treatment.

It must be remembered that the child enters this world without the least respect for private property. On the contrary his primitive instincts tend to make him acquisitive and grasping. Honesty in action is a trait that must be developed.

In the home, distinctions between the possessions of various members of the family are often not clearly made. The child feels that all the things in his immediate environment belong to him. He cannot, therefore, be suddenly expected to change his attitude outside the home. Property of others naturally has no significance to him. He sees no reason why he cannot have his little friend's kiddie-car. At the first opportunity he proceeds to take possession of it as if it were his own. If parents wish to instill the idea of private property in the young child they must begin this training within the home. The child should be taught that certain articles in the household belong to mother or to sister and that they must not be taken without their permission. Likewise a child should know that he also has his own possessions, toys, toilet articles or clothing which are put in a certain place for him and which he should feel are his very own. These should never be taken from him without his consent. In homes where this idea of individual possession has been stressed from the very beginning, the habit of taking the property of others is not as likely to develop in the young child. This training often prevents such habits from developing into actual stealing.

Other causes of stealing in the young child include jealousy, the feeling of inferiority and revenge.

When the child finds that his sister or brother receives more attention from his parents, admiring relatives or friends, or even more toys than he does, jealousy may impel him to take possession of some of his brother's or sister's possessions. This habit, begun at home in this way may cause him to take things belonging to others outside the home. Thus the child who covets pretty ribbons and other attractive knick-knacks of her companions which she may be denied at home, may pilfer such objects when the opportunity is offered. The child should be compelled to return the stolen articles and also be made to understand that such practices are socially unacceptable. The parent can also point out that it is not the fair thing to do, that she would not like to have her things taken away from her. If the parents meet this situation at the onset with courage, firmness, and no display of emotion, the chances are that the act will not be repeated. If, however, there is any emotional display on the part of the parents, the child may enjoy the emotional havoc she has caused and repeat the act with this additional motive in mind.

The feeling of inferiority, present in every child to some extent, may under certain circumstances become intensified. When this occurs the child may resort to stealing as an indirect compensating mechanism. This is illustrated by the case of Robert who found himself socially ostracized from a group of children whose friendship he desired. Robert was slower than the other boys and consequently could

not keep up with them in their games. His feeling of inferiority was increased and he promptly resorted to some method of compensation. By petty thievery he was able to get plenty of "treats" for the boys and thus gain their favor. In order to "stand in right" now Robert is compelled to repeat his pilfering at frequent intervals. It is clear that it is the feeling of inferiority which, in such a case as this, must be treated. A feeling of proficiency, a belief in himself and his own ability must take its place. The parents should seek to discover some special aptitude in the child and direct the child's education along lines best suited for him. In this way a feeling of power and satisfaction will gradually come to take the place of the erstwhile feeling of inferiority. It is surprising how many so-called bad habits disappear when activities, the outcome of which will be successful are substituted for those which can only result in dismal failure.

As an underlying cause of stealing, revenge is more frequently observed in older children than those of the pre-school age. Occasionally, however, the young child aroused by some injustice directed against him may be incited to pilfering as a method of "getting square." Thus Freddie's friend has upset his blocks and in revenge Freddie desires to make off with his friend's marbles. The parents should endeavor to encourage him to set a good example and not to do something wrong just because his friend did. Thus the pleasant feeling of self-righteousness will supplant the mean idea of revenge.

It is obvious that mere punishment cannot solve the problem of stealing in the young child. Recourse

to this procedure by parents is an admission of their inability to cope with the situation. Each instance requires most careful study. There is no one road to successful management. The underlying cause of the thievery in each case should first be determined. Appropriate measures should be instituted and directed to the elimination of the fundamental cause, whether it be the child's immature attitude toward private property, jealousy, his feeling of inferiority, his desire for revenge or any other factor. Under no circumstances should the parents try to "cover up" their child's misdeed in order to "uphold the honor of the family," nor should they allow any evidence of this trait in the child to pass unnoticed in the belief that all will be well when he grows older. If after the parents have made every effort, the habit of stealing persists, a physician versed in this subject should be consulted.

Punishment

To a number of parents the word punishment implies physical pain. This meaning is a survival of the day of our great-grandmothers when corporal punishment was the only generally accepted method of disciplining the child.

Deprivation of the child's customary rights and privileges as well as reprimand and censure are included within the scope of punishment.

The aim of punishment is to deter the child from repeating a particular misdeed and to develop in him greater self-discipline. It is of prime importance that the child should be made aware of exactly why he is

punished and that he be told just what is expected of him in the future. If this is not done the punishment serves no purpose. On the contrary, by engendering a feeling of bitterness and resentment in the child its effects may be distinctly harmful.

Punishment should seldom be resorted to. The child should be encouraged to develop self-discipline for the satisfaction and pleasure it brings him because in this way he receives the approbation of his parents. Proper behavior should be taught not forced by threats of punishment. The "good" child whose every action is dominated by the fear of punishment, may become a much more difficult problem in later life, than the child who is occasionally "bad" but whose actions are not controlled by such a fear. Harsh punishment crushes the personality of a child and thus arouses a fear of self-expression which may seriously impair his chances for future success and happiness. The child may in such a case find a haven in a dream world and so may become detached from everyday activity and association. This development of a shut-in personality should be prevented.

A fine spirit of mutual respect, confidence and friendship between child and parents cannot flourish in a home where the parents have frequent recourse to punishment. Parents must not be misled by appearances. The child may be meek and submissive and seem contented with life but deep down in his little brain, he may harbor feelings of hatred and antagonism toward them. He will grasp the first opportunity to escape. This outcome is frequently observed in the young girl whose unhappy childhood impels her to accept the first proposal of marriage

even though the man may mean nothing to her but a means of escape from her home.

Mother must carefully guard against punishing the child as an outlet for her own turbulent feelings. All too often the child's slightest offense is severely punished only because the mother may have a headache or may have had a hectic day in her business or social activities. We realize how difficult it may be at times to control one's feelings but it is necessary to do so because the infliction of undeserved punishment is a grave injustice to the child.

When occasionally punishment must be administered this should be done promptly and without any emotional upheaval on the part of the parents. No signs of anger or of revenge should be evinced. Some of the methods which may be used are disapprobation of the parents, deprivation of privileges or toys and temporary removal from a group. Frequently natural consequences are an aid to the parents in teaching the child obedience.

An example of natural consequences is that of the child who, though told not to go too near the radiator, insists on touching it and is burned. Mother need not fear that this child will ever repeat the offense. Punishment through natural consequence is one of the most effective lessons in all cases where the consequences bring enough discomfort to the child to make an impression without entailing actual harm or danger. In many instances drawing the child's attention to the relation between his own acts and their natural consequences are enough to set him on the right path. The "tummy ache" caused by Johnny's raid on the cookie jar, the cold caused by

Anne's running out in the rain without her rubbers, Tommy's fright caused by finding himself lost because he did not obey mother's injunction to "stay close by" will prove to be excellent deterrents in the future.

As an illustration of temporary removal from a group we may cite the case of Tommy who was asked to leave the dinner table until he could learn to refrain from tapping his glass with his knife.

The other methods suggested, disapprobation and deprivation of privileges and toys, are self-explanatory.

Corporal punishment which involves the infliction of physical pain upon the child should never be employed. We feel that such harsh disciplinary measures may result in arousing fear and in developing an unwholesome parent-child relation and these consequences outweigh any chance benefit. In our experience best results are obtained by a prompt, intelligent and unemotional handling of each offense or misbehavior as it arises without recourse to the infliction of pain. Corporal punishment is a wholly unnecessary disciplinary measure.

Approach to Sex Education

We have previously noted how the child's innate curiosity prompts him to ask innumerable questions about the things he sees around him. Is it not perfectly natural that he should some day ask questions about himself or perhaps his little sister? In a perfectly casual way the child of three or four years will ask, "Where do babies come from?" This ques-

tion should be answered as all other questions should be, truthfully and sincerely. "Baby comes from mother's body where it has grown from a tiny seed" is an adequate reply.

Bearing in mind that the child will sooner or later ask this question, parents should be prepared to answer it without showing any surprise or embarrassment. The blush, the hemming and hawing, the expression of astonishment that often greets the child's unexpected query may stimulate his curiosity unduly. He may feel that there is something improper in this particular question or that his parents wish to conceal some interesting fact. If parents wish to develop a wholesome attitude in the child toward the question of sex they must discipline themselves in the proper approach to the subject. Under no circumstances should they veil the topic in mystery.

At the same time no undue emphasis should be laid upon the subject. It is inadvisable to tell the child of three or four more than his question requires. The tendency of some modern parents to dilate upon the subject at great length, long before the young child has any real interest in its details is certainly undesirable. The child will either not understand what is said or his attention will be focused upon the subject prematurely.

Sometime later, perhaps at the age of five or six, the child's curiosity may prompt him to ask very pointed questions regarding the origin of babies and the role played by father in the process. If the parent will, in a matter of fact way, explain that the seed is planted in the mother's body by father, and that

after growing for nine months the baby with the assistance of the doctor comes out into the world through an opening in the lower part of the mother's body, the child's curiosity will usually be completely satisfied. Occasionally a precocious child may eagerly ask for further details regarding the implantation of the seed. The parent should not hesitate to impart such information in a frank and clear manner.

If parents fail to meet their responsibilities in this matter, the child will undoubtedly seek the desired information outside the home. The knowledge acquired in this way is likely to be misinformation, colored by the filth and indecencies of the street. Certainly before entering school where hundreds of older children may be ready to impart perverted notions of sex to him the child should be made aware of the simple truths concerning sex matters. If by this time the child has not sought such information at home, the parent should pave the way for the child's questionings. A walk through the park or out in the country may suggest a discussion about plants and animals which may very naturally lead to that of humans. Whenever possible questions relating to sex should be discussed with children in the outdoors, either in the country or in the park where natural phenomena may be observed and the child can sense the relationship between the natural and the beautiful.

To be prepared to properly present the subject of sex to the child parents must banish their fear and inhibitions regarding the subject. These have long hampered progress in the sex education of children.

The attitude of the child toward the nude body is

a problem that often perplexes the mother. What should the parents do about permitting the child to enter their bedroom is a question which often arises. This should present no difficulty. When the child is very young he wanders about the house at will, in and out of bedroom or bathroom, and during these wanderings he sees his parents in varying stages of dress and undress. This he will take as a matter of course if the parents do not expose themselves unnecessarily nor rush to hide when the young child wanders in. His curiosity is in no wise excited for nothing is being concealed. Should he ask the name of this or that part of the body the answer should be forthcoming without hesitation or embarrassment. The names breast, navel, genitals should be spoken of in the same tone as any other names of objects which might be mentioned. When the child grows a little older social usage demands that he knock at his parents' bedroom door just as they knock on his, before entering. Now the parents can bid the child enter or not, at will, for should the child be requested to "wait a moment" he will know he is being asked to wait as a matter of convenience not because of any desire on the part of the parents to hide something from him.

If the household arrangements are such that brother and sister of pre-school age dress and undress together this should be accepted as a matter of fact and in this way no unhealthy curiosity will be aroused concerning each other's bodies. Later on a sense of privacy will develop and if parents do not interfere the children will settle the matter for themselves.

The attitude of parents toward the sex education

of the child may be summed up in these words: No emphasis and no secrecy.

Companionship and Play

It is during the pre-school period that real companionship begins to assume an important role in the child's mental growth. Before the age of two the child enjoys the company of others but he does not specially favor children of his own age. Adults, older children or even small infants have the same significance for him. At about the age of two he begins to take cognizance of children of his own age but he usually does not invite co-operation in play until he is a few months older.

The value of companionship in teaching the child how to make social adjustments early in life cannot be overemphasized. The desirable traits of co-operation, fairness, honesty, consideration and sympathy for others are nurtured in an atmosphere of wholesome friendship.

The young child should be encouraged to play with children of his own age or slightly older. If there is considerable difference in years the younger child's strength may be overtaxed by his attempts to keep pace with the older one.

Children should be permitted to play together without unnecessary interference of adults. Let them experience the joys and sorrows, the trials and tribulations of their own little world. The adult should watch from a distance and only when great difficulties arise which may lead to serious or dangerous consequences should the grown-up intervene. By encour-

aging children to settle their own disagreements they will be better prepared to make social adjustments in later life.

Our attitude toward play in the life of the young child has undergone a very radical change during the past decade. It was formerly looked upon simply as a source of amusement and recreation, a means of keeping the child occupied while mother did the chores of the house unhampered by the little one's demand for attention. We now look upon play as a tremendous opportunity for intellectual and emotional growth. Play is the young child's school, his serious job and his fun all in one. When learning is harnessed to pleasure we have an ideal arrangement to stimulate mental development. Most of our schools with all their strict rules, regulations and routine studies, and our present highly organized society under which most jobs have been made drab and monotonous, have not yet learned the wonderful possibilities which may be obtained from combining pleasure and work. Thus far it is only the young child that has been granted this opportunity for his development.

Knowledge can be joyfully acquired, initiative and imagination can be splendidly stimulated by furnishing the proper setting for the child's play. Space and tools are the essentials. If possible the child should be provided with his own room. Shelves should be built within his reach where his toys and other possessions may be kept, his to play with and his to put away when play is over. If the household arrangements do not permit a separate room the child should be granted sizable space.

The tools of the child are his toys. They are things he can throw, pull and push, take apart and put together again; things with which he can draw, paint and build; things which he can fit into and onto each other and arrange in varying patterns; make-believe babies and miniature household furnishing. All these provide him with a wealth of material for mental growth. To be of any educational value to the child, however, the toys must be suited to his age and ability. They should be durable and attractive in design and color. Much too often toys are chosen for the child at random, the final selection being made because of some special appeal to the grown-up.

The child should not be showered with toys. Too many playthings frequently confuse and bewilder him. The overactivity which is sometimes stimulated in this way may lead to destructiveness. The child should never be given more than one or two toys at any one time.

We do not approve of the time-honored, customary birthday party for children of the pre-school age. The congregation of many young children in a limited space indoors, not only tends to spread any "cold" or other communicable disease that may be lurking in one of the little guests but overstimulates activity and excitement especially in the child whose birthday is being celebrated. The large number of gifts, many possibly unsuited to his age, with which he is confronted usually discomposes him considerably. If the birthdays of the young child must be celebrated the mother would do well not to invite more than four or five additional children for the occasion. This will

minimize the danger of spreading infection and will be less apt to stimulate overactivity. Incidentally the young child will probably enjoy the smaller party more. When a number of toys are brought for the child on these occasions the mother should quietly and without any ado put them away leaving one or two for immediate use.

Toys have been made the subject of a number of serious studies with a view to their value for physical development and education of the various age groups of children. One of the best of these studies was that made by Edith London Boehm of the Child Study Association of America. The following list of toys is taken from her article, *Fitting the Toy to the Child*: *

ONE AND A HALF TO THREE YEARS

Physical Development and Outdoor Play

Small slide	Kiddie-car
Seesaw	Wheelbarrow
Swing	Express wagon
Sand box	Wading pool
Sand toys	Tower gym
Large ball	Iron or wooden trains
Pail and shovel	

Imitative Play

Rag or unbreakable doll	Unbreakable dishes
Cradle or bassinet	Carriage
Laundry set	Stove
Brush, mop, dust pan	Boat
Rag or woolly animals	Push and pull toys

* Child Study Magazine.

Manipulative and Creative Play

Blox-that-lox train	Merill-Palmer concentration
Baby peg board (pegs 8 inch thick 5 inches high)	toys
Color pyramids	Jumbo puzzle board
Nested color trays and figures	Jumbo outline pictures
Peter toy cart	Jumbo crayons
Peter toy wiggle	Large beads to string
Pull-apart tractor	Blackboard and chalk
Drawing paper	Soft soap or wood for hammering nails

Blocks

Nested wooden blocks	Large building blocks
Colored blocks	(simple forms)

Rhythm

Tom tom	Bells
Cymbals	Victrola and good records

Books

Linen picture books	Nursery songs
Mother Goose rhymes	Panorama books
Simple realistic stories	

THREE TO FOUR YEARS

Physical Exercise and Outdoor Play

Outdoor gym	Slide
Doorway gym	Sand box
Jungle gym junior	Sand toys
Wooden garden tools	Velocipede
Iron roller skates	Wheelbarrow
Steel dump truck	Wading pool

Imitative Play

Housekeeping

Laundry set	Stove
Cooking set	Bassinet
Refrigerator	Kitchen cabinet
Unbreakable doll	Kitchen utensils
Unbreakable dishes	Carriage
	Mop, dust pan, brush

Industrial and Transportation

Iron truck	Telephone
Iron fire engine	Horse and wagon
Wood or iron trains	Metal aeroplane

Manipulative and Creative Play

Blackboard and chalk	Jumbo design board
Jumbo crayons	Strip puzzles
Jumbo outline pictures	Jumbo stencils
Jumbo sewing cards	Large color cubes
Peg board and pegs	Oilcloth weaving mats
Jumbo beads	Plastercine
Peter toy cart	Tiny Town Conductor
Put-together Gypsy cart	Tiny Town Trains
Paints—six colors	Drawing paper
Blunt scissors	Paste

Blocks

Large floor blocks	Wagon with board wheels and dowels (accessory)
Hollow outdoor blocks	

Large colored blocks

Rhythm

Tom tom	Cymbals
Triangle	Victrola and good records

Books

Animal stories
Nursery rhymes
Realistic stories

Poetry
Nursery songs

FOUR TO SIX YEARS

Physical Exercise and Outdoor Play

Auto coaster	Skiis
Snow skates	Seesaw
Indoor gym	Slide
Outdoor gym	Sled
Velocipede	Football
Roller skates	Scooter

Dramatic and Imitative Play

Toy village and ark	Circus toys
Costume play suits	Printing set
Composition animals	Cash register

Housekeeping
(preferred by girls)

Doll and carriage	Refrigerator
Doll accessories	Cooking set
Doll house and furniture	Laundry set
Wardrobe trunk	China dishes
Kitchen cabinet	Bassinet
Junior furniture	Stove

Industrial and Transportation
(preferred by boys)

Steel trucks, trains, engines	Motor and sail boats
Derrick	Large wooden train
Concrete mixer	Aeroplane and hangar

Construction and Creation

Tool chest
Stabuilt blocks
Lincoln logs

Large building blocks
Auto to build
Arkitoy

Arts and Crafts

Blackboard
Crayon and paper
Paints and easel
Color design cubes
Mystic board

Patch paper pictures

Cut-out scissors
Modeling clay, wax
Weaving looms
Simple sewing set
Knitting ring

GAMES FOR SOCIALIZATION

Honey bee
Ringtoss
Bean-bag throw
Tiddley winks
Crazy traveler

Jack straws
Ten pins
Colored dominoes
Archery
Puzzles

Books for the Young Child

Concerning books for the young child, Arnold Gesell writes:

“Books for the pre-school child, like his diet, must be selected with discretion and a sense for balance of ration. And the assimilation of books and pictures for young children is comparable to that of physiological digestion. We must find and create precisely those things of beauty in word and picture which are best suited to the child’s capacity of assimilation and growth. He can be nourished not through dilutions of fluid inanity found in trashy juvenile books but only through genuine artistic adaptation. . . . In

the psychological sense a child needs literature as much as an adult does, because literature reflects life. The child needs a mirror of life. Poor books and poor pictures are mirrors with distorting flaws while good books and pictures furnish insight and direct his lines of growth. . . . Good literature helps to establish a philosophy of life even in the very young. Through seeing pictures and hearing tales the child learns how the work of the world is done, is filled with admiration and with faith. . . . Best of all he may learn sympathy through the sense of humor which is almost a philosophy of life in itself."

The above excerpt is from the foreword by Arnold Gesell to Elsa H. Naumberg's "Study of the Best Picture and Story Books Available for the Pre-School Child," prepared by the Child Study Association of America. Mrs. H. Elsa Naumberg offers an excellent book list for the young child up to six years of age, and from this list the following books are selected.

Although a list of fairy tales is included we do not recommend their use in the case of every child. There is a certain type of fairy tale in which wicked witches, horrible ogres, cruel stepmothers and deeds of violence are described which should not be read by any child. But even the best fairy tales may have an unpleasant influence on some children, developing fears, restless sleep and bad dreams. Fairy tales are surely not for them. But for those children who find pleasure in the fanciful tale and who suffer no unpleasant reaction, fairy tales may be of real value. Mrs. Naumberg points out that wholesome fairy tales stimulate the imagination, inculcate lessons of social

and ethical relationships, kindness, fraternal love, respect and faithfulness.

A question frequently asked by parents is "What shall we do about the funnies?" The following list may solve this problem for these parents, as stories are included which combine rollicking fun, healthy humor and delicious nonsense with real beauty, and these will often satisfy the need felt by these children who have a hankering after the comics.

With this in mind, we have placed an asterisk next to the books of humor and nonsense.

SELECTED BOOKS FOR THE PRE-SCHOOL CHILD

Sturdy Picture Books About Animals Board, Panoramic (Can be pulled up or set up like a screen), Linenette

Animal Friends	Nelson
Four Footed Friends	Sam'l Gabriel
Baby's Pets	Raphael Tuck
The Three Bears	" "
A La Ferme (Farm Animals)	R. de la Nezière
Svet Zvirat (Animal World at Play)	J. Lada
Komari Svatba (Mosquito's Wedding)	Kotusan

Sturdy Picture Books About Transportation

The Railway Book	Sam'l Gabriel
Ships at Sea	Nelson

Sturdy Picture Books About Children

Children at Play in Many Lands	John Rae
Denni Zivot Batolatka (Baby's Daily Life) ..	Fischerová-Kwechova
Komedie-Konícek (Marionettes)	Joseph Sladek
Mother Goose Nursery Rhymes	Tuck
* Bilderbucher (Picture Books)	K. F. von Freyhold

Picture Books About Animals

The Ark Book Freda Derrick
 Farm Animals B. Sippich
 The Tale of Peter Rabbit
 " " " Jemima Puddleduck
 " " " Benjamin Bunny
 " " " Tommy Tip Toes
 " " " Tom Kitten
 " " " Mr. Jeremy Fisher Beatrix Potter
 * Tony Sarg's Wonder Zoo Tony Sarg
 * The Disobedient Kids and Other Czechoslovak
 Tales Bozena Nemcova

Picture Books About Farm Life, Industry and Transportation

L'été est la Ferme est à la Bassecour (Summer at the
 Farmyard) Garnier, Paris
 Four and Twenty Toilers E. V. Lucas
 Story of the Ship Gordon Grant

Picture Books About Children

* Ring o' Roses Warne
 Japanese Children The Toyodo, Tokio
 * Toto est chez le Coiffeur (Toto at the Barber's) Madeleine Hermet
 Ein Frohes Jahr (A Happy Year) Kathe Berl
 Was Uns Freut (What We Enjoy) Marie Stadlemayer
 Nasím Detem (Our Children) Fischerova-Kwechova
 * La Première Chasse de Poum (Poum's First
 Hunt) Madeleine Hermet

A B C Books

Tony Sarg's Alphabet Book Tony Sarg
 A B C Book C. B. Falls
 * A B C Petite Contes Jules Lenainre

Picture Books with Simple Stories

Goody Two Shoes Picture Book Illustrated by Walter Crane
 * R. Caldecott's Picture Book No. 1
 * R. Caldecott's Picture Book No. 2

- * Hey-Diddle Diddle Picture Book
- * The Panjandrum Picture Book Randolph Caldecott
- * Snipp Snapp Snurr Albert Bonniers
- * Sagan on den Lilla Lilla Gumman (Story of a Little, Little Old Lady) Andra Upplagan
- * Fille (Story of a Dog, A Doll and a Little Girl) .Madeleine Hermet
- The Adventures of Lucy and Leander Lamb ..Marjorie Hartwell

Mother Goose Rhymes

The Jessie Willcox Smith Mother Goose

- Mother Goose C. B. Falls
- The Real Mother Goose Blanche Fisher Wright
- Mother Goose's Nursery Rhymes Edited by L. Edna Walter
Illustrated by Chas. Folkard

Nursery Jingles

- Marigold Garden Kate Greenaway
- Posy Ring Kate Douglas Wiggin & Nora Archibald Smith
- * Porridge Poetry Hugh Lofting
- * Nonsense Songs Edward Lear
- * The Book of Nonsense & More Nonsense Edward Lear
- * On the Road to Make Believe Frederick J. Forster
- Peter Patter Book Leroy F. Jackson

Stories in Rhyme

Dame Wiggins of Lee and Her

- Seven Wonderful Cats Illustrated by Mr. Roy Meldrum
- The Brownies—Their Book Palmer Cox

Poems of Childhood

- When We Were Very Young A. A. Milne
- Rhymes of Childhood James Whitcomb Riley
- Songs of Childhood Walter de la Mare
- Poems of Childhood Eugene Field
- Rainbow Gold Sarah Teasdale

Fables

Baby's Own Aesop	Walter Crane
Fables de la Fontaine	Illustrated by R. de la Nezière
Picture Tales From the Russian	Valery Carrick
Jataka Tales	Ellen C. Babbitt

Stories About Animals

Animal Folk of Wood and Plain	T. D. Deming
Four Footed Wilderness People	T. D. Deming
* A Voi Bimbi (To You Children)	Edwardo Geoja
* Bugs and Wings and Other Things	Annie W. Franchot
* Just So Stories	Rudyard Kipling
Puppy Dog Tales	Francis E. Kent
* Story of Mr. Doolittle	Hugh Lofting

Stories About Real Boys and Girls

* Ameliar Anne and the Green Umbrella	Constance Heward
The Arabella and Araminta Stories	Gertrude Smith
The Roggie and Reggie Stories	Gertrude Smith
A Dog of Flanders	Louise de la Ramée
* The Story of Little Black Sambo	Helen Bannerman
* Les Derniers Places de Marie au Sabots de Bas (The Adventures of Marie the Brittany Maid) ..	Librairie Garnière

Stories from the Bible

Bible Story Book	Seymour Loveland
Bible Stories For Children	Margaret Livingstone Hill

Fanciful Stories of Adventure

* Bojabi Tree	Edith Rickert
* Clean Peter and The Children of Grubbley ..	Ottilia Adelborg
The Little Wooden Doll	Margery Williams Bianco
* Shorty	N. Grishina
Pinocchio	Carlo Collodi
Mr. Wind and Madam Rain	Alfred de Musset
The Peep Show Man	Padraic Colum

Fairy Tales

Adventures of a Brownie	Dinah Maria Mulock
* The Magic Fishbone	Charles Dickens
Peter Pan	Sir James Barrie
Nursery Tales From Many Lands ...	Eleanor L. & Ada M. Skinner

Collections of Stories

A Very Little Child's Book of Stories }	Ada L. Skinner &
A Little Child's Book of Stories }	Eleanor R. Skinner
Children's book	Horace E. Scudder
Mother Stories	Maud Lindsay
Poppy Seed Cakes	Margery Clark
Stories To Tell the Littlest Ones	Sarah Cone Bryant
The Make it up Story Book	Cornelia Adams
New Stories to Tell Children	Sarah Cone Bryant

Cultural Interests

It is becoming increasingly recognized that interest in the aesthetic aspect of life should take root in early childhood if we wish to develop to the fullest, capacity for genuine enjoyment of the beautiful all through life. Surround the child with beautiful things. Let him view the splendors of nature and the artist's interpretation of them in pictures and sculpture. Let him listen to wholesome stories, simple poetry and fine music especially adapted for children. Few parents realize their children's ability to appreciate artistic creations. This appreciation often leads to the desire for participation. If parents will foster the aesthetic spirit in the home in a simple and natural way, the child's life will be inestimably and permanently enriched.

In concluding this chapter we cannot resist the impulse to emphasize again the tremendous oppor-

tunity that lies in the mental guidance of the young child. The importance of the study and direction of his thoughts, emotions and attitude is only beginning to be appreciated. In the future this subject will undoubtedly command the same, if not greater attention than that now accorded the physical care of children. The mental health of the child must go hand and hand with his physical health. Like diphtheria and small pox, delinquency and crime can be prevented. What toxoid and vaccination will accomplish in the prophylaxis of these infections, proper mental guidance will achieve in the prevention of antisocial, behavioristic tendencies.

The sooner that the full significance of mental guidance is realized and acted upon by parents, physicians, teachers and our governmental authorities, the sooner will our pressing problems of delinquency, crime and mental derangements be well on the way to solution and much of the inadequacy and unhappiness of adult life will give way to a more effective and richer living.

Part Four

DISORDERS AND DISEASES
OF CHILDHOOD

I

COMMON DISORDERS

Vomiting—Hiccough—Constipation—Diarrhea—Loss of Appetite—Crying—“Teething”—Enlarged Adenoids and Tonsils—Rickets—Anemia—Common Cold—Earache—Rupture.

MANY mothers become unduly worried and nervous over any symptoms however slight that may appear in the baby. They feel that given the proper care and supervision, baby should be justly appreciative and show no disturbances of any kind whatsoever. But baby does not always act this way. He is growing and changing rapidly. Slight unavoidable variations in his surroundings and food may occasionally produce disturbances. These changes include such factors as the character of the cow's milk, accidental exposure to infection as well as climatic conditions. Inherited tendencies play a part in producing certain physical defects as for example a rupture (hernia), and squint.

A few illustrations will make these statements clearer. In the sweltering heat of summer there is a greater tendency for the child to develop diarrhea. In spite of our efforts to keep the baby as cool and the milk as clean as possible, an intestinal upset may occasionally arise. The upset will not, of course, be as serious as when sanitary and hygienic precautions

are disregarded, and will usually clear up in a few days.

During the winter months when there is a minimum of ultra-violet rays in the sunlight, slight manifestations of rickets may appear even though baby is taking cod liver oil or Viosterol. Such slight cases clear up without leaving any permanent changes.

Mothers frequently forget that even the very best cow's milk may vary from time to time depending on the food and condition of the healthy cows from which it is obtained. Milk is not a manufactured article which can always conform exactly to a sample. Just as changes in the nursing mother's food and in her general condition may affect her breast milk, so may cow's milk undergo slight variations which are beyond control. Occasionally such a change may cause a stomach or intestinal upset in the susceptible baby. Fortunately this disturbance is, in most cases, not serious or of long duration.

In this chapter we will discuss the most common disorders which may occur. It is best that the mother should know some facts regarding the handling of these common ailments. This knowledge, we hope, will not only help the baby, but will allay the mother's fears and anxiety.

Vomiting

Slight regurgitation or "spitting up" after bottle or breast feedings is a very common occurrence in the normal healthy baby especially during the first few months of life, and does not indicate the need for a change in feeding. Real vomiting, where consider-

able food is thrown up in a gush or spills out, requires medical attention.

There are many causes for vomiting in infants, the most common being a stomach or intestinal upset or the onset of an infection. The latter is usually accompanied by fever. A formula containing a high percentage of fat cannot be tolerated by some infants and produces vomiting. Too rapid feeding or too large an amount may also induce vomiting. If the vomiting is slight, a change in the formula or feeding schedule may relieve the condition. Sometimes only the amount of the formula must be decreased and this may be done by concentrating the feeding. In this way the same nourishment is given although the quantity is less.

Where the vomiting is considerable or severe it is most advisable to stop the milk and all solid food until the physician arrives. He will probably discontinue all solid food for twelve to twenty-four hours. This will give the stomach a rest, but it is necessary, however, to give the baby some fluids. This can be done in the form of weak tea with sugar (2 teaspoonsfuls to 8 ounces of tea) or diluted orange juice. The most important thing to remember in the treatment is to give a small quantity at a time at short intervals. If there is considerable vomiting, it is best to give but one teaspoonful of sweetened weak tea or diluted orange juice every 15 minutes for 5 or 6 hours. If both are taken well they can be alternated. As the vomiting subsides, the quantity and the intervals between feedings should be increased gradually. When the milk is resumed it is best to remove the cream and use the skimmed por-

tion for a day or two. Most cases of vomiting are not serious and respond readily to this simple procedure.

There are a few rare conditions of a more serious nature in which vomiting is a prominent symptom. In pyloric stenosis where there is a spasm of the distal end of the stomach, vomiting is very severe and projectile. The feedings "shoot" out with explosive force and there is little or no stool as hardly any of the food passes through the intestines. In intussusception there is a telescoping of one part of the intestines into another producing an obstruction. Severe vomiting occurs accompanied by bloody, mucous stools of a currant jelly appearance. These diseases require very careful medical supervision. Fortunately they seldom occur.

Hiccough

Hiccough, though often an annoying symptom is usually not important or serious. It occurs in perfectly normal and healthy infants. It may at times accompany digestive disturbances.

The condition is a spasm of the diaphragm. It comes on in most instances after eating. The exact way in which the spasm occurs is not known, but it is possibly due to the over-filling of the stomach, to the swallowing of air, or to the adherence of particles of milk to the inner lining of the esophagus, the tube through which the food passes from the throat to the stomach.

Treatment consists in holding the baby up over the mother's shoulder to assist in expelling any air

he may have swallowed and to feed him one or two teaspoonfuls of boiled water with a few grains of sugar.

Constipation

The number of stools a day varies with the individual baby. There is no hard and fast rule. One baby may thrive and be perfectly contented with one stool in twenty-four hours, at times one stool in even a longer period; another, equally healthy, may have three stools during the same period.

The stool of the bottle-fed baby is usually pale in color and more solid in consistency than that of the breast-fed infant. At times the stool is quite firm and the baby is forced to "squeeze hard" to eliminate it. If such a difficulty in passing a stool occurs occasionally it need be no cause for worry. If, however, the stool is persistently hard, causing the baby considerable discomfort, or if the baby experiences discomfort or fretfulness due to lack of an evacuation, measures may be instituted to alleviate the condition.

One of the most important procedures is to develop the regular habit. Just how this is done is discussed elsewhere (see page 127).

The use of orange juice or prune juice beginning with a few drops and increasing the amount to two ounces is often very helpful.

At the age of four or five months, bran, (1 tablespoon), may be added to a portion of cereal.

Occasionally it is necessary to substitute raw milk (but only "certified" milk) for the pasteurized or boiled milk usually recommended. In some cases the

raw milk seems to be more laxative than the cooked.

The use of one of the malt sugars as Dextrimaltose #3, Karo Syrup, Malt Soup, etc., in the formula is often of value.

Gentle massage of the abdomen before one or two of the feedings each day for 5 or 10 minutes, sometimes proves successful in overcoming the constipation.

Only if all these measures fail should one resort to medication. The best preparations for the baby are milk of magnesia, $\frac{1}{2}$ to 2 teaspoonfuls, or mineral oil, 1 to 2 teaspoonfuls given before bedtime.

Diarrhea

Mild cases of diarrhea with three to five loose watery stools are not uncommon during the heat of the summer. The stools are often green and contain a little mucus.

At the first signs of looseness of the bowels, many mothers become panic-stricken. They have been told by their neighbors or relatives, or they have read of the grave dangers of summer diarrhea. It is true that a quarter of a century ago this disease was a great menace and scourge to the infant population. Since then, however, the improvement in the methods of milk production, the widespread knowledge of sanitation and hygiene, and the more efficient treatment of the diarrheal condition when it first appears, have reduced the number of dangerous and serious cases to comparatively few.

While there is usually no cause for anxiety, the

mother should take every precaution to prevent the occurrence of the disease. During the summer, baby should be kept as cool as possible and the milk and water used for the formula should be boiled for three minutes. Grade B or loose milk should never be used. Wash the hands carefully before handling the baby and no person afflicted with diarrhea should be permitted to be near him as some cases of diarrhea are infectious.

In the treatment of a mild case it is sometimes sufficient to eliminate all fruit and laxative sugars from the diet and to reduce the amount of the milk formula fed to the child. If this does not check the condition or if the diarrhea becomes worse a more rigorous procedure is necessary. No cathartic is needed. The old family remedy of giving a cathartic day after day is harmful, sometimes disastrous.

In the more severe cases there are 5 to 10 or more loose green watery stools at times even tinged with blood. Milk as well as fruit juices and solid food should be stopped. Fluid is given in the form of weak tea, boiled water or barley water, in small quantities, 1 to 2 tablespoonfuls every $\frac{1}{2}$ to 1 hour. Our object is to give the irritated intestinal tract a rest. The thermometer should not be inserted in the rectum during an attack of diarrhea as this procedure frequently produces a bowel movement.

If, at the end of 24 hours the condition has improved, boiled milk may be given in small doses every two hours. As the tolerance for milk increases, larger amounts are gradually given at increased intervals until the regular schedule is reached. In some

cases the physician may find it necessary to prescribe medication to decrease the irritability of the bowels.

Several different milk preparations are used in the treatment of diarrhea in infancy. One very frequently prescribed is the so called protein milk, first formulated in Germany and known there as "Eiweiss Milch." It is comparatively rich in protein with a low percentage of sugar and fat. It is made by heating one quart of whole milk to a temperature of 98° to 100° F., which is then coagulated by adding 1 junket tablet or 1 teaspoonful of essence of pepsin. The whey or liquid part is strained off through cheese cloth and discarded. The dry curd is rubbed through a fine sieve and washed through with a pint of boiled water. Then ordinary buttermilk is added to make up a quart. To improve the taste, a grain of saccharin may be added to the whole amount. The milk is usually given even without further dilution. It is ordinarily used for 3 to 5 days and if improvement occurs the regular whole milk formula is resumed. Protein milk may sometimes be procured ready for use at a milk laboratory. Dry protein milk preparation may also be purchased. (Mead Johnson & Co., Merrelle, Soule Co.). Lately other preparations are being used. (Buttermilk, lactic acid milk, etc.).

Fortunately very severe and critical cases of diarrhea are now of infrequent occurrence. When such toxic cases develop they require a most skillfully planned medical régime including such procedures as a blood transfusion, a slow infusion of glucose solution into the vein drop by drop and a carefully graduated feeding schedule.

Loss of Appetite

Occasionally the normal healthy infant will refuse to take a feeding or two during the day. This loss of appetite may possibly continue for two or three days, when the appetite usually returns. Too often this state of affairs causes needless anxiety in the household. Under no circumstances should the baby be forced or coaxed to eat, for such a procedure may soon develop poor feeding habits.

If the loss of appetite persists, an attempt should be made to learn the cause. An overheated room or lack of sufficient fresh air may be the underlying factors. The excitement caused by much handling and fondling by relatives and friends may react on the baby's nervous system and cause him to refuse his bottles. Too frequent feedings often induce lack of appetite. In such cases, increasing the interval between feedings by an hour will often prove effective. Occasionally it becomes necessary to change the formula in order to make it more palatable to the taste of the discriminating baby. The problem may be solved at times by concentrating the feedings so that less in amount, although of sufficient caloric value can be given.

Crying

Baby's cry is probably the most distressing and puzzling of mother's problems. Just what does he mean by that sudden shriek, that constant wail, that nerve-racking yowl?

There are a few general facts about the infant's cry that should be borne in mind. A cry does not

always mean pain, as so many mothers fear. It may simply mean a request for attention, to be picked up or played with. It may signify slight discomfort from a wet or soiled diaper or from too hot or too cold a room. It may be just his way of asking for the bottle.

Babies are not all alike when it comes to crying. Just as adults differ in their reactions to sensations, some being much more sensitive than others, so do infants vary considerably. What will set up a howl in one infant may not disturb another in the least. Parents take it for granted that grown-ups differ in temperament, but they fail to realize that the same may be true of babies. Two healthy babies living under the same conditions may react in entirely different ways to the same stimulus. Little Johnny with a wet diaper may "yell his head off" while Marie lies placidly smiling at life though her diaper is just as wet. Little Anne may give her mother a most unhappy hour because the sheet of her crib is slightly crumpled while Tommy may play with his toes in a most contented fashion, though his sheet be as crumpled as Anne's. It is clear parents must observe their children's traits of personality and temperament and recognize that there is nothing alarming in this behavior of Johnny or Anne.

In the newborn infant a moderate amount of crying is normal and useful for it expands the lungs. The average healthy young baby cries about $\frac{1}{2}$ hour a day.

Most normal babies cry when their free move-

ments are restrained as when being dressed or washed. The most common causes of crying are habit and hunger. It is remarkable to note at what an early age and how quickly infants acquire habits. Just rock a baby several times, or pick him up often for a few days, or shake his crib, or give him a pacifier once or twice and you will find that he will howl when he is deprived of the special attention. Indulge his habit and he stops crying. Certainly one can conclude that he is neither hungry nor in pain, just pampered. The treatment is evident. Stop the particular practice to which he has become accustomed and "let him cry it out." Otherwise life in the household may become very disagreeable. One bad habit if uncurbed soon leads to others, and therefore it is of great importance that no bad habits be established.

It is important to make certain that the cry does not indicate hunger. If the baby is gaining weight regularly, from 5 to 6 ounces a week, and seems to be in general good health, the cry probably does not mean hunger unless it takes place just before feeding time. If by merely picking up such a baby the crying stops, mother may be positive that this is not the cause of the commotion. If the baby fails to gain or even loses weight, his crying may mean hunger.

The cry of pain is usually sharp and piercing, often intermittent. The baby's features may be constricted. The cry generally persists even when the child is picked up and fondled. An open safety pin or some other disturbing object in the crib or in

the clothing should be looked for. Other common causes of pain are inflammation of the ear and indigestion.

The cry of illness is often a plaintive sound or moan and is usually accompanied by irritability. Fever is frequently present.

One cannot judge the severity of a condition by the loudness of the cry, for the most violent outburst may be due to a temper-tantrum.

The fear of producing a rupture seems to deter some mothers from allowing the pampered baby to "cry it out." But this fear is unfounded because a rupture is not caused by crying in the normal healthy baby.

Teething

From time immemorial to the beginning of the present century almost all the afflictions of infancy were at one time or another attributed to teething. Even now, here and there among the laity, one hears that an abscess of the ear was due to teething or that pneumonia developed when those eye teeth were cutting through. Most intelligent mothers of to-day no longer hold this old fashioned view. The cutting or the appearance of a tooth does not cause any disease. In most instances no disturbance whatsoever is produced. In many cases the mother's first knowledge of teething in the baby is the actual appearance of a tooth.

There are, however, some infants in whom the appearance of a tooth is preceded by a few days of fretfulness and irritability with a loss of appetite. Before attributing any symptoms to teething every

other possible cause should be carefully eliminated by the physician. In the past, disasters frequently resulted from this superstition concerning teething. Sick children that could have been cured by early medical attention were woefully neglected because of the false notion that they were "just teething." Fortunately such cases are decreasing with the spread of modern knowledge.

Enlarged Adenoids and Tonsils

Adenoids consist of a soft red mass of lymphatic tissue which is found in back of the nose in the upper portion of the throat. They are not an abnormal growth as is so frequently believed but are just a part of the structure of the throat. As the adenoids are situated around the posterior openings of the nose, difficulty in breathing naturally arises when they become sufficiently enlarged to block the passage of air from the nasal cavities into the throat. Such large adenoids may produce restless sleep and discomfort because of this difficulty.

Marked enlargement of the adenoids frequently produces mouth breathing, snoring, difficulty in sucking and a noisy respiration during the waking hours. If this obstructive breathing persists, a narrowing of the dental arch of the upper jaw may develop, resulting in a deformity of the mouth.

A persistent nasal discharge may indicate disease of the adenoid tissue. It so happens that the opening of the eustachian tube, a narrow passage communicating with the middle ear, lies adjacent to the adenoids in the upper part of the throat. At

times an infection of the adenoids may spread through the eustachian tube and produce an inflammation of the ear.

Adenoids should not be removed in all children as a preventive health measure. Such a procedure is entirely unjustifiable. Moderately enlarged adenoids producing but slight obstruction may be left alone. Frequently they atrophy into a smaller mass. Diseased or markedly enlarged adenoids with persistent symptoms of obstruction require surgical removal. If the symptoms are urgent the operation should be performed even at the early age of six or seven months. Most cases, however, are not so urgent and the operation may be delayed until the age of two or three years. By that time the condition may have improved and the operation may be found unnecessary. In a small number of cases adenoids grow again even if removed properly.

The tonsils do not play as important a role in the disturbances of infancy as do the adenoids. They are, however, sometimes found to be much enlarged even at an early age. The outstanding symptom is difficulty in swallowing. If this symptom persists and especially if frequent attacks of tonsilitis occur, the tonsils should be removed at the age of two or three years.

In some quarters, wholesale removal of tonsils and adenoids have developed into a fad. These tissues have been accused of being the seat of almost all the troubles a human being is known to have. Adenoids and tonsils have been pronounced guilty of causing all diseases all through the gamut from mental retardation to bed wetting. Their removal

has been recommended as a panacea. This attitude is entirely wrong. While the danger of the operation is slight, it nevertheless exists. They should be removed only when definite indications are present.

Rickets

Much confusion exists in the minds of many people regarding this common disorder of infancy. When, after examining a baby the physician pronounces the word rickets, it usually strikes terror into the heart of the anxious mother. Not knowing just what the condition is, the name itself seems to fill her with fear and trembling. In some instances this apprehension is due to a recollection of seeing children or reading about children stunted in growth, with large prominent foreheads, deformed chests, protuberant abdomens, knock-kneed or bow-legged. These are signs of extreme cases of rickets. This is the picture often described in books and in conversations amongst neighbors. Actually such severe, active cases of rickets are now rarely seen except in some of the poorest tenement districts, where neither sunshine nor the elementary knowledge of infant care have penetrated.

The early symptoms of rickets are profuse sweating of the head, a parchment like softness of the bones at the back and side of the head (craniotabes) and enlargement at the ends of the ribs where they join the cartilages on the front aspect of the chest wall. The last symptom is known as beading of the ribs. When baby is somewhat older, the ends of the long bones become enlarged, denti-

tion is often delayed and the anterior fontanelle may show little tendency to close. Muscular weakness together with the softness of the bones may be evidenced by the child's inability to sit up alone or stand alone at the normal age. Muscular weakness may also lead to a protuberant abdomen (potbelly) and constipation.

Rachitic babies are often susceptible to frequent colds and are prone to develop anemia.

X-rays of the bones show distinct changes from the normal and an examination of the blood usually shows a decrease in the amount of phosphorus. The calcium content may also be lowered.

One does not usually find all these symptoms in one case. On the other hand it is sometimes difficult to state without an X-ray or blood examination that a particular baby has rickets. In doubtful cases therefore, it is best to give the treatment which is simple and harmless.

Most of the cases of rickets are of a mild type which readily lend themselves to treatment and heal without leaving any permanent damage. Studies made in recent years have demonstrated that the disease develops in the absence of Vitamine D. This vitamine can be readily supplied by cod liver oil or by irradiated ergosterol (Viosterol). The ultra-violet rays in natural and artificial sunlight probably produce the same vitamine by their action on the skin. Since these discoveries we certainly need have no fear when early symptoms of rickets are detected.

The disease usually develops when the baby is

between three and eighteen months of age. It occurs much more frequently during the winter months. In fact, almost all babies born during the winter months show some evidence of this disorder. Curiously enough, the rapidly gaining, fast growing babies are apt to show more signs of rickets than those making slower progress.

The most striking factor in this disease is the failure to deposit calcium in the bones. It is the calcium that gives the bones their hardness and strength. In the severe cases that go untreated and do not heal spontaneously the bones give way when pressure is put upon them, as in standing or walking. The lower extremities become curved instead of remaining straight and various degrees of deformity are produced. The majority of cases, however, do not progress to this stage as they heal from the effects of the summer sun or from the use of cod liver oil.

The control, prevention and treatment of rickets can best be summarized briefly—fresh air, sunshine, and cod liver oil. As already mentioned the sunshine in the late fall and winter is poor in effective ultra-violet rays. Therefore, even exposure to sunshine during these months may not prevent rickets and cod liver oil should be administered. The latter should be used, commencing in the middle of October, all through the winter months beginning with $\frac{1}{4}$ teaspoonful twice a day, increasing daily about $\frac{1}{4}$ teaspoonful per dose until 2 teaspoonfuls twice a day are given. This should be started when the baby is one month of age. It

may be advisable not to give the cod liver oil at first with a spoon. As the taste of the oil is unpleasant to many children they may later dislike all that is offered them with a teaspoon. We recommend the administration of cod liver oil with a dropper. If, however, the child likes the cod liver oil, a change to the spoon may be made. If the cod liver oil cannot be tolerated a substitute may be found in Viosterol. The relative merits of the two have been previously discussed (see page 66).

The use of ultra-violet rays derived from one of the artificial sun lamps, a Quartz or Carbon Arc, is unnecessary for a mild case of rickets. In the more pronounced and severe cases, a lamp may be used in conjunction with cod liver oil if recommended and supervised by a physician. During the summer, cod liver oil and Viosterol may be discontinued as the summer sun, rich in ultra-violet rays, will develop sufficient Vitamine D in the baby's body for the control and cure of rickets.

For controlling rickets, the feeding of children with food enriched in Vitamine D is being at present attempted. Experiments are being conducted to increase the Vitamine D content of cow's milk by feeding the cows with fodder to which yeast, irradiated by ultra-violet rays, is added. Exposure of the cows to sunshine and to the rays of ultra-violet lamps has been found to be less effective.

Fresh milk, as well as milk in a dried form, and other foods are being experimented with and are being exposed to ultra-violet rays with the idea in mind to increase their content of Vitamine D.

Anemia

Anemia sometimes develops in the course of rickets. Other common causes are infections and improper feeding.

The error in feeding is usually a prolonged and exclusive diet of milk. We have seen babies nourished with milk or milk and cereal alone up to the age of eighteen months or two years. These babies often show a marked pallor. Breast feeding if continued too long will induce a similar condition. Milk contains but little iron, an element which is needed for the formation of the coloring matter (haemoglobin) of the red blood cells. In anemia there is a decrease in the amount of this coloring matter and sometimes of the red cells as well.

Premature babies and twins are more prone to develop the condition than the normal full term child. The treatment consists of giving the proper diet as outlined previously and an abundance of fresh air. In some cases the physician may find it necessary to give an iron preparation. Anemia in infancy is a condition which responds very readily to appropriate management. Lately the importance of the addition of copper to the iron has been stressed.

A few years ago a valuable contribution was made to the science of medicine in the discovery of a specific cure for pernicious anemia, a disease of adult life, practically never encountered in childhood and not to be confused with the usual anemias of childhood. The cure was found in liver. Immediately eating of liver was adopted by the laity with

much avidity. Its price rose phenomenally. It was prepared for children to prevent and cure anemia and as a general tonic. While the usefulness of liver in certain conditions of childhood should not be denied, its value should not be exaggerated.

Common Cold

The ordinary common cold is of frequent occurrence in infancy. Its danger lies in its possible extension to the bronchial tubes and lungs, producing a bronchitis or pneumonia. The younger the child the more likely it is that such complications may develop. The delicate constitution of the baby is unable to cope with the infection as successfully as the older child or the adult.

Our greatest efforts should be directed toward the prevention of the cold rather than its cure. A cold is probably more communicable than any of the so-called contagious diseases. For many years no special precautions were used to guard against its spread. We are just beginning to regard it with proper respect.

The common cold is undoubtedly due to germs, the isolation of which is still being studied. The nasal and pharyngeal secretion contain the infectious material and can be easily spread by speaking, kissing, sneezing and coughing.

A cold is an inflammation of the mucous membrane of the nose, the upper part of the back of the throat and not infrequently of the adenoids. There is redness and swelling with production of mucus which trickles down through the nasal pas-

sages. There may or may not be a rise in temperature.

To prevent the infection, the child should be kept as far as possible from any member of the household or from visitors that have any signs of a cold. Under no circumstances should baby ever be kissed on the face even by the healthy adult. Infants in the first month of life should be kept carefully isolated from contact with too many adults. Even if they are apparently healthy, they can be carriers of catarrhal germs.

With fond relatives and friends all anxious to see the baby, it may be difficult for the mother to accomplish proper isolation. But she should be firm in the knowledge that she is taking the necessary steps to safeguard the baby from possible serious trouble. If the mother, herself, has a cold and there is no one else to take care of the baby, some degree of protection can be secured if the mother will wear several layers of gauze over her nose and mouth.

Undue exposure to inclement weather especially during the winter months is sometimes a contributory cause for colds. In the susceptible child, exposure to a sudden change in temperature may act in the same way.

The treatment of the cold by medicines is not very satisfactory. It is difficult to get at the source of infection. The instillation of drops (Neo-Silvol 10%, Argyrol 15%) into the nose is used but its value is open to question. Ephedrine Inhalant 1% applied in the same way sometimes gives a temporary relief to the uncomfortable feeling of a stuffed nose. The clogged nose may often be eased by hav-

ing a few drops of warm albolene applied twice a day.

The removal of the tonsils and adenoids does not always influence the severity or frequency of colds. We have seen colds recur just as often after the operation as before. However, there are other cases in which the removal of the tonsils and adenoids have been of great benefit. Where the tonsils and adenoids have become so enlarged due to repeated infection that they produce obstructive symptoms such as mouth breathing and snoring, or where they show definite evidence of infection, they should be removed. If the tonsils and adenoids are normal, the child should not be subjected to the operation for the relief of colds.

Vaccines as well as the use of the Quartz lamp have been advocated for the prevention and cure of colds but their value has not been definitely established.

Earache

Sudden, sharp, piercing spasms of crying with turning of the head from side to side in an infant who has a cold should suggest an earache. The older child usually indicates the seat of trouble by pointing to the painful ear.

The infection does not travel from the outside through the external part of the ear as so many mothers seem to believe. It is not caused by a draught. It is usually an extension of an inflammation in the nose and throat through the eustachian tube. Frequently the disturbance develops as a com-

plication of the common cold or of one of the communicable diseases.

One of several possibilities happens in the course of the disorder. Often the inflammation completely subsides within twenty-four hours, sometimes it goes on to abscess formation. In the latter case drainage must be provided. This may require a slight operation. An opening is made in the ear drum and the pus is allowed to run out through the canal of the ear. The discharge often continues for two or three weeks or longer. The question whether dry treatment, that is, the simple wiping out of the pus, or irrigation is most advisable, should of course be left to the decision of the physician.

One of the serious complications of an ear infection is mastoiditis or inflammation of the mastoid bone. The mastoid is situated behind the ear and is in communication with it.

There seems to be a long established idea among the laity that every mastoid inflammation requires an operation. This is certainly not true. A great many "mastoids" subside without surgical intervention. A skilled ear specialist usually tries conservative treatment before resorting to operation.

In the past a mastoid operation was looked upon as one fraught with danger and risk. The proximity of the mastoid to the brain accounted in no small measure for this feeling of dread and fear. To some extent this impression still exists. The advances made in modern surgical technique, however, have made the operation much less dangerous than is usually thought.

Other complications of ear infections which are fortunately of rare occurrence include meningitis, sinus thrombosis (inflammation of large veins in the skull) and brain abscess.

Rupture

A rupture or hernia is a protrusion of part of the abdominal contents, usually the intestines, through an opening in the muscular wall of the abdomen. The bulge is felt underneath the skin. The most common site in infancy is the navel. The treatment is quite simple. The protuberance should be depressed through the opening and an inverted pleat made by drawing up the skin on either side of the navel. A strip of adhesive plaster one inch wide and $2\frac{1}{2}$ inches long is placed across the abdomen horizontally to keep the hernia in place. The procedure is best accomplished by two persons, one making the pleat, the other applying the adhesive plaster. When the plaster becomes loose, usually after five or six days, another should be applied in the same way. This treatment should be continued until the rupture disappears. The daily bath should be continued as usual. The treatment may be interrupted for a few days if the baby's skin should become irritated.

A rupture may occur in the groin. For this condition a special device, in the form of a woolen bandage or a truss, is used. This keeps the intestinal loops within the abdomen by exerting pressure on the opening and prevents the bulge. In the meantime the opening in the abdominal cavity is given

an opportunity to close. If after six months no improvement occurs, a resort to an operation is often necessary. The operation is usually postponed until the child is able to control urination and bowel movements; that is, until he is two to three years of age.

II

OCCASIONAL DISORDERS

Enlarged Thymus—Convulsions—Holding Breath Spasms—Croup
—Swollen Glands of Neck—Pneumonia—Grippe—Rheumatism—
Chorea—Tuberculosis—Syphilis—Pyelitis—Appendicitis—Eczema—
Allergy—Scurvy—Worms—Emergencies—Prevention of Accidents
—Open Talcum Powder Boxes—Swallowing Foreign Bodies—Burns
—Bleeding—Nose Bleeds—Cuts and Wounds—Accidental Swallowing
of Poisons and Antidotes.

OCCASIONALLY other disorders occur in childhood. A description of some of the more important ones will be given. It would, however, be very unwise for the mother or nurse to attempt to make a diagnosis from the material presented here or in any other book. This task belongs to the trained physician. We have seen much unnecessary anxiety produced by mother's insistence on making a diagnosis after "reading up on the subject." This diagnosis is usually far afield and may be of a much more serious character than the case is found to be on the arrival of the physician. In the meantime the entire household, including the child, is under marked nervous tension. Such harrowing experiences should be avoided. Knowledge of diseases acquired from books should only be used as an aid in intelligent understanding of the physician's diagnosis and instructions.

Human beings have the peculiar tendency to dis-

cover in themselves or their children all the symptoms of the various disorders of which they read. This propensity is exemplified by the young medical student who finds himself afflicted with many imaginary ailments during his college career. In their anxiety over their children's health, mothers should carefully guard against the error of seeing symptoms and signs of disease where none really exist.

Regarding the descriptions which follow, we wish to emphasize the fact that these disorders are not of common occurrence and that baby may grow up to adolescence unafflicted by any of them. They are included to afford us an opportunity to stress the methods of prevention and to impart some general information. For the diagnosis and treatment of sickness the mother should always depend upon the knowledge and experience of the physician.

Enlarged Thymus Gland

Much has been said and a great deal written about the thymus gland but we really know very little about its function or its diseases. The gland is situated in the upper part of the chest underneath the sternum or breast bone and overlying the heart and tracheal tube. It is best demonstrated by the X-ray. The thymus is an unusual kind of gland as it is largest at time of birth and gradually decreases in size during childhood until it almost disappears.

Sudden death in infancy has been attributed to an enlarged thymus but definite proof of this is lacking. Attacks of difficult breathing with cyanosis or

blueness, as well as a constant impairment in breathing or stridor have all been thought to be due to enlargement of the thymus gland. The importance of the thymus as a cause of symptoms has, we feel, been much over-emphasized. It has been shown that many normal, healthy infants have enlarged thymus glands. Only in very rare instances where the gland is so much enlarged that it exerts pressure on adjacent structures, is it a cause of symptoms.

X-ray is the best method available for treatment of the enlarged thymus. Radium has also been used successfully. Most cases of enlarged thymus, however, require no treatment. It is only where the symptoms definitely suggest the thymus, as a cause, that therapy should be sought.

Convulsions

Most attacks of convulsions appear much more serious and terrifying than they really are. It is usually not a very dangerous condition. Ordinarily the attack is over in a few minutes, even without any treatment. Frequently the mother or nurse becomes panicky and does entirely too much in her effort to relieve the child.

During a convulsion there are usually violent twitching movements of arms and legs. Frequently the eyes are rolled up or to one side and there is more or less foaming at the mouth. In some cases the tongue is bitten. All this occurs during a state of unconsciousness. There are a number of possible causes of an attack of convulsions in infancy and childhood. The most common is the onset of an

acute infection (grippe, measles, pneumonia, etc.). A high temperature is usually present. There is a great variation in children regarding this reaction, from the child that never gets a convulsion to the one that has an attack at the beginning of every acute disease. The latter child, in spite of this tendency, may enjoy perfect health during the intervals. This type of convulsion should not be a source of anxiety to the parents. It disappears in later life and leaves no perceptible evidence of damage. The same is true of convulsions which in rare instances are produced by a stomach or intestinal disturbance without fever.

The more serious and fortunately less frequent causes of convulsions are brain injury, sometimes sustained at birth, inflammation of the meninges or covering of the brain (meningitis) and epilepsy.

In case of convulsions the physician should of course be summoned at once to determine the underlying illness. Until he arrives the child should be protected from injury. Tongue biting may be prevented by holding a spoon between his teeth. If possible the child should be undressed completely and a sheet wrung out in tepid water should be wrapped around his whole body leaving his head uncovered. A cold compress should be applied to the forehead. An enema and a warm bath may be given.

Tetany is a condition associated with rickets in which convulsive seizures are produced. They are frequently of a different type than those just discussed. During the spasms the hands and feet are held in a peculiar position. The hands are flexed at

the wrists, the thumbs turned in and the fingers outstretched over them. The feet are markedly extended and the toes flexed. In tetany, the amount of calcium in the blood is decreased. Treatment with calcium, cod liver oil or Viosterol and sunlight effect a permanent cure. This condition should not be confused with tetanus (lockjaw) which is an entirely different and much more dangerous disease.

In tetanus there is a spasm of the muscles of the face and jaw so that the mouth cannot be opened. Convulsive movements of the extremities also occur. This disease is due to a germ, the tetanus bacillus, which enters the body through wounds. The germ is often found in earth and in materials that become contaminated with earth and if carried deep in the tissues by nails, splinters, fire crackers or cap pistols may cause this very serious infection. The most important consideration in this disease is prevention. Children should not play with any kind of fire crackers no matter how innocent these may appear to be. This dangerous form of amusement in connection with the celebration of the 4th of July in the United States should certainly be abolished. If a deep wound has been made and even if there is only a suspicion of contamination with earth or gun powder, it should be treated by a physician who may inject tetanus antitoxin as a preventive measure. This injection may sometimes cause serum sickness in a susceptible child. This reaction comes on five or six days after the injection and is characterized by an extensive, itchy rash, fever and swollen glands. It is usually not serious, often subsiding in

a day or two. The fact that this reaction may occur should not stand in the way of using the anti-toxin in a suspicious case. If serum sickness has once occurred, however, after the injection of any kind of antitoxin, the mother should always mention this fact to the physician before antitoxin is again administered to the same child. In such a case special precautions must be taken.

Holding Breath Spasms

Amongst the less common disorders this condition is one frequently found in infancy and early childhood. During the spasm the child cries vigorously, then holds his breath and turns blue, after which, there may or may not be a short period of unconsciousness. The child always regains consciousness. When viewed for the first time it is undoubtedly a terrifying sight for the young mother. Usually too much is done. It is best to leave the child alone. With the knowledge that recovery will always take place the mother need have no fears. Some children go into such an attack during a fit of bad temper. Children with tetany or rickets may develop these spasms more easily than other children.

The management of such a child is frequently a very difficult problem. On being thwarted in any way he promptly resorts to crying which is followed by a spasm. A great deal of patience and good judgment is required.

Croup

Croup is one of the most distressing of childhood afflictions. It usually comes on at night often without any warning. The child awakens with difficulty in breathing. This symptom varies from a harsh noisy breathing with a barking cough in a mild case, to a terrifying, gasping respiration in the more severe one.

The trouble lies in the larynx which is acutely inflamed and narrowed by a spasm. This contraction of the air passage causes embarrassment in breathing.

There are two types of croup, the simple, spasmodic or false croup and the membranous or diphtheritic. The symptoms of both may be very much alike although usually the diphtheritic variety is more severe. It is of utmost importance to summon the physician at once in any case of croup, for if it be diphtheritic in nature, antitoxin should be given immediately. Sometimes it is very difficult even for the doctor to differentiate the two conditions as he cannot under ordinary circumstances look into the larynx. In case of doubt he will inject diphtheria antitoxin, the safest procedure for protecting the child.

For the relief of the simple case of croup steam inhalations are valuable. An ordinary tea kettle, a croup kettle or an electric vaporizer may be used to furnish the steam. A tent may be improvised by drawing a sheet over the top of the crib. The kettle or vaporizer should be placed about two feet away from the child with the spout in the direction of his face. Every precaution should be taken to avoid

the accidental upsetting of the apparatus with the consequent burning of the child.

Even in cases of diphtheritic croup the above palliative measures may be used in conjunction with the specific treatment of antitoxin. But more important than all the curative and palliative measures is the prevention of diphtheritic croup by immunization with toxin antitoxin or Toxoid. The tremendous value of this procedure and some of the details of its administration will be fully discussed later (page 295).

Swollen Glands of the Neck

Swollen glands of the neck is one of the most annoying of childhood diseases. The usual type of this infection is not serious but it often persists for many weeks in spite of treatment. The glands are enlarged and painful and there is often a high irregular temperature. Finally the glands either subside, or break down in which case an abscess is formed which requires incision and drainage. Whether the outcome will be an abscess or not depends in any given case, not upon the particular treatment but rather upon the kind of the invading bacteria.

The infection of the glands of the neck usually follows a throat or tonsil inflammation. It sometimes occurs as a complication of one of the communicable diseases, chiefly scarlet fever and diphtheria.

Treatment for this condition consists in watchful waiting on the part of the physician for any signs of abscess formation. The application of heat to the

glands in the form of poultices and the use of medication to make the child comfortable are useful. As the condition often persists for several weeks a nourishing diet should be provided.

Swelling of the glands of the neck may occasionally be caused by the tubercle bacillus. This is usually a chronic infection without much elevation of temperature and with but little tenderness and pain. A Von Pirquet test for tuberculosis is of considerable value in helping the physician make the diagnosis. Artificial sun-ray or X-ray treatment often effect a cure.

As the usual case of swollen glands of the neck follows some throat infection as tonsillitis, diphtheria or scarlet fever, our preventive methods must be directed against these disorders. If there are frequent attacks of tonsillitis with swollen glands or if the tonsils are definitely diseased, they should be removed. The preventive measures for the communicable or contagious diseases will be discussed later.

Pneumonia

With the arrival of the winter and spring months pneumonia becomes more prevalent. As there is no specific way of immunizing children against the disease, every precaution should be exercised in guarding against this infection.

The usual type of pneumonia in infancy and early childhood is a disease easily communicated and quite as "catching" as any of the so-called contagious diseases. Few people realize this fact and as a result inadequate provisions are made for the proper

isolation of cases. This fact is strikingly brought out in institutions and hospitals where infants are kept in open wards. Epidemics are not infrequent.

As we have mentioned previously, a person afflicted with a common cold may carry the germ that will produce pneumonia in an infant. How important it is then, especially during the winter months and early spring to protect the child from being kissed and unnecessarily handled. A person with or just having recovered from a cold should not come near the child. It is during these months too, that a cold or bronchitis should be treated with the utmost care. A few days spent indoors with the usual simple treatment may prevent a serious lung infection.

Undue exposure and damp air should be avoided as this may lower the child's resistance to the invading germs.

There are two types of pneumonia. Bronchopneumonia is the form usually found in children less than two years of age and in older children as a complication of one of the communicable or contagious diseases especially measles and whooping cough. In this type high intermittent temperature may persist for two or three weeks, sometimes longer, and then subside gradually. In the lobar type which is the form usually encountered in older children and adults, the onset is very sudden with a chill and a sharp rise in temperature which remains high for about a week and often terminates by crisis.

In both types there is an acute inflammatory condition of the lung. Besides the high fever, the symptoms usually present are a subdued short cough,

difficult, rapid breathing with varying cyanosis or blueness. Pain in the chest may be present.

In some cases of pneumonia the cover of the lung (pleura) also becomes infected and pus accumulates between the chest wall and the lung. This complication is called empyema.

The treatment must be directed by the physician. There is no specific drug that can be considered a cure for pneumonia in infancy and childhood. Lately a serum treatment has been tried. Further studies must be made before its usefulness can be definitely established. There are, however, a number of measures that may help the child in its battle against the disease. Efficient nursing is of prime importance. An abundance of fresh air is essential. Medicines are useful to allay excessive coughing, pain and other symptoms that may arise. Where there is anemia, blood transfusion is of distinct benefit. In cases with very rapid breathing and considerable cyanosis, the oxygen tent offers definite relief. In cases of empyema surgical procedure is frequently necessary. It may be mentioned that we are not able to prevent the development of empyema by therapy.

La Grippe or Influenza

One of the most confused subjects in medical practice is the disease called Grippe. This diagnosis is frequently made for want of a better name to describe a combination of manifold symptoms. When a child has a common cold with an elevation of temperature the case is often labeled one of

grippe. It would, however, be much more accurate to describe it as an upper respiratory infection. The term intestinal grippe has been used very loosely for cases with abdominal symptoms and fever where the real cause of the disturbance has not been determined. Influenza is the name usually applied to the severer cases in this group in which congestion or infiltration of the lungs is sometimes found.

When this disease was first described it was considered a distinct entity caused by the influenza bacillus. Later the same train of symptoms were found associated with other bacteria but most doctors as well as laymen were satisfied with the designation of grippe or influenza irrespective of the cause.

This confusion in nomenclature does not cause any difficulty in treatment as there is no specific remedy for this type of infection. The physician will endeavor to make the child as comfortable as possible and treat any symptoms that may arise.

Cases of grippe and influenza are often very contagious. It is a frequent experience to find one member of the household after another attacked by the infection. Careful isolation of the first case would do much to prevent the spread of the disease. Too often the mother or father, who is taken ill with grippe, allows the child to enter the sick-room, exposing him to infection. It is, we grant, sometimes difficult to keep the child out, but it is more difficult to have him as a second patient.

During epidemics crowded places such as the subway, movies, etc., should be avoided whenever possible.

Rheumatism

Almost all cases of heart disease in childhood are due to a rheumatic infection. This fact at once stamps the condition as one of the most serious of early life.

Unfortunately a great deal is still unknown regarding the disease. While a specific type of bacteria (*streptococcus rheumaticus*) is thought to be the cause, definite proof of this has not been established. The tonsils and the teeth have been accused of harboring these organisms. While this may be true in some instances, there are others in which the source of the infection cannot be found.

The acute case of rheumatism is easy to recognize. Fever, a red throat and inflamed, swollen, painful joints are the prominent symptoms. Involvement of the heart may follow. Small firm lumps, rheumatic nodules, sometimes develop underneath the skin near the joints and in the scalp. Most cases of rheumatism in childhood, however, are not of this acute type. They often present a difficult problem for diagnosis. Vague joint and muscle pains, so-called "growing pains," may sometimes indicate a rheumatic infection. On the other hand these pains may merely be the result of some unusual use of muscles, improper shoes or flat feet. A careful physical examination by the physician will help to determine the underlying cause of these pains.

There seems to be an inherited susceptibility to this infection in certain families. Where this fact is known, the child should be especially protected from undue exposure to cold and damp-

ness, for these factors may lower his resistance.

Rheumatic heart disease in children is found more frequently in families of small incomes where there is difficulty in maintaining proper hygiene, sanitation and adequate standards of living.

In the treatment of rheumatism prolonged rest in bed is often necessary. An attempt should be made to discover and eliminate any focus or area of infection within the body which might act as a portal of entry for the bacteria. Drugs in the form of salicylates are usually prescribed by the physician and are helpful in combating the disease.

Chorea (St. Vitus' Dance)

When a child over three years of age begins to act and walk in a clumsy awkward manner with involuntary jerky movements of the arms or legs, chorea should be suspected. There may be in addition a weakness of one or more extremities so that a limp is produced in walking. The child may drop things because of the unsteadiness of the hands. Then, too, there is often an emotional instability, the child crying or laughing at the least provocation.

It is of the utmost importance that parents should be able to recognize the early symptoms of this condition. Lack of this knowledge has caused much unnecessary suffering. We have known of many children that were harshly punished because of their bizarre motions and peculiar mental behavior which were in reality manifestations of chorea.

Bed rest in a calm quiet environment is very im-

portant. Further treatment should be supervised by the physician.

Chorea must be carefully differentiated from tics or habit spasms. Many mothers mistake these controllable habits for the much more serious disease. Blinking of the eyes, and various grimaces are usually manifestations of habits acquired by imitation or because of some underlying cause.

Tuberculosis

The story of the fight against the "white plague" is a glowing tribute to preventive medicine. The tremendous decrease in the number of those afflicted as well as in the mortality during the past twenty-five years has clearly demonstrated what can be accomplished by putting our growing knowledge of preventive measures into practice on a large scale.

The detection of early cases and their segregation in sanatoria; instruction of patients in personal hygiene, especially regarding precautions to be taken in coughing and expectorating; improvement in the sanitation and ventilation of homes; general education of the public in building resistance to the disease by an abundance of fresh air, sunlight and wholesome foods are all methods which are contributing much to the conquest of the disease.

But it is to childhood that we must turn for the future and greater progress in the eradication of tuberculosis. It is generally recognized that the first infection with the tubercle bacillus very frequently occurs in childhood. This early infection may be mild, involving only a very small part of the lung

and may heal spontaneously without having caused enough symptoms or signs to arouse any suspicion of the disease. But if the child is exposed to repeated and massive infection, serious forms of the disease may develop. Even mild infections should be carefully watched because later in life if the body resistance becomes lowered, this original focus may flare up and spread over a wide area producing a severe lung tuberculosis, or the germs may be carried in the blood stream to distant parts producing tuberculous disease elsewhere, in the bone, brain meninges or glands.

With these facts in mind it is obvious that much can be done in the way of preventing tuberculosis in childhood. As the disease is definitely communicable it is important that children, whether they have been infected or not, should not come in contact with any known case of active tuberculosis so that they should not risk a possible infection or re-infection. The disease has often developed in a child from exposure to some tubercular adult member of the family and in other cases a boarder or lodger proved to be the source of infection. Nurses for infants and children, governesses, maids, etc., should be thoroughly examined by a physician before they are engaged. This way of prevention has been too long neglected. We know of many cases of tuberculosis in children contracted from individuals afflicted with the disease, living in the home as mothers' helpers or in full charge of the children. Of course these people are usually unaware of their condition or their danger as sources of infection. The children become the innocent victims of igno-

rance or negligence. Mothers who are most particular about everything else regarding the baby are often totally unconcerned about the health of the nurse who spends most of the day in close contact with him. With the growing realization of the importance of periodic health examinations for all members of the community, no objection to such a procedure should be raised by those engaged in the care of children. With this in mind kindergarten and school teachers should also be requested to undergo periodic health examinations.

Other measures for the prevention of tuberculosis are quite well known. The maintenance of excellent health increases body resistance to the tubercle bacillus. Plenty of fresh air, sunshine, adequate, wholesome food and sufficient rest, all play a significant part in prevention.

The early detection of the disease is, of course, of paramount importance. Much can be done to arrest the infection in its early stages. The periodic health examination is of inestimable value in discovering such cases. The von Pirquet test, a simple skin scratch test, or an intracutaneous test (Mantoux) are very useful means for the diagnosis of a tubercular infection in childhood. X-ray examination also play an important role in revealing an early infection of the lungs.

The treatment depends on the part of the body involved and should always be directed by the physician. Measures that are employed in the general care of the tubercular child include life in the outdoors, ample feeding, prolonged rest and the use of cod liver oil.

Syphilis

Syphilis in infancy and childhood is usually of congenital origin, the microbes (*spirocheta pallida*) having entered the child's body during its prenatal life in the uterus of the mother. The diagnosis depends on certain characteristic manifestations on the mucous membrane and skin and nasal catarrhal symptoms in conjunction with a positive blood test (Wasserman reaction). The presence of the condition can be determined only by the physician who will, in a positive case, administer the appropriate specific medication.

The prevention of this serious disease lies primarily in thorough physical examination including the Wasserman test of every man and woman contemplating marriage. If this has been neglected however, a Wasserman test of the blood should be taken at the onset of pregnancy, for even then, if the test reveals the presence of syphilis it is not too late for the treatment to be effective in protecting the child against the disease.

Occasionally syphilis develops in children by contact with adults afflicted with the disease or by articles used by them. It is obvious then that all grown-ups of the household should be examined with this in view if the child is to be thoroughly protected.

Pyelitis (Pyuria)

Pyelitis is an acute inflammation of one or both ureters, frequently involving the bladder and the pelvis of the kidney as well. The ureters are tubular

structures through which the urine passes on its way from the kidneys to the bladder. The disease is much more common in girls than in boys.

Pus is found in the urine and high intermittent temperature is the rule. Occasionally chills occur. After a more or less stormy course sometimes lasting as long as several weeks, the usual case recovers completely. The very exceptional case which may be due to tuberculosis or to a congenital defect somewhere in the genito-urinary system or to a kidney stone, presents a more difficult problem. This is of such rare occurrence that we usually have no hesitation in stating that a case of pyelitis will make a complete recovery.

As a preventive measure against such cases which are due to direct contamination from without, care should be exercised in washing the baby girl's buttocks. This should always be done by washing or wiping away from the genital organs, not toward them so that no particles of stool or dirt are rubbed into the opening of the urethra, the place of exit of the urine. This procedure does not prevent the occurrence of pyuria from causes arising within the body.

In the treatment it is essential that large amounts of fluid be taken to flush through the urinary tract. Medication should be left to the physician.

Nephritis, or inflammation of the kidneys, occurs usually as a complication of one of the communicable diseases especially scarlet fever. The diagnosis is made from an examination of the urine. Headache, puffiness of the eyelids and swelling of the legs may be present.

Appendicitis

For many years most people thought an acute appendicitis occurred only in adults. The idea that a young child and even an infant could be so afflicted was rarely considered. As a result many cases were treated as just ordinary stomach aches often with disastrous results. The appendix usually ruptured with a resultant acute peritonitis, a very serious and dangerous complication.

In recent years the increasing number of recognized cases in childhood has changed this attitude to some extent. The possibility of an acute appendicitis should always be thought of when a child has severe pain in the abdomen especially if it localizes on the right side. Usually a moderate degree of fever and vomiting are present but these symptoms may be absent. If there is the least suspicion the physician should be summoned at once, for quick action in such cases is sometimes vital.

Eczema

Eczema is one of the most troublesome and annoying of infant disorders. It is manifested by an itchy red rash usually appearing on the face and scalp, often persisting for many weeks. The condition is not a serious one but its unpleasing appearance and tendency to itch are a source of worry to both mother and baby. In the course of time the condition invariably clears, leaving the skin in a normal condition.

As rubbing or scratching makes the condition

worse, it is of the utmost importance to prevent the child from doing either. To accomplish this it is often necessary to keep the child's arms down at either side by pinning the sleeves, or to place the arms within an enveloping sheet or blanket. Water should not be used on the affected areas. For cleansing, a bland oil may be employed. An appropriate ointment prescribed by the physician often helps to shorten the course.

The cause of this disorder has been a baffling problem. Many cases are probably due to some disturbance of the metabolism. Others are due to a condition called allergy.

Allergy

Allergy is becoming of increasing importance in the explanation of a number of disorders of childhood which were formerly thought obscure.

Allergy in childhood is due to a sensitization to various substances which may come in contact with the body. It implies that the cells of the body are susceptible to irritation by these substances. They may come in contact with the body through several channels; through the respiratory tract by inhalation as of pollens, powder and dust; through the gastro-intestinal tract by ingestion of food; through the blood stream by injection of antitoxins and vaccines; through contact with the skin as in the case of wool and certain drugs.

The symptoms produced by the irritation depend upon the parts affected. The irritation of the nose, eyes, and throat by pollen gives rise to hay fever;

of the bronchi to bronchitis and asthma; of the intestinal tract to abdominal pain; of the skin to hives and in some cases to eczema.

A certain number of children are born with a tendency to become easily sensitized. In many cases it is possible to determine the offending substance by the skin scratch tests. If this is ascertained a brilliant cure may often be effected. Unfortunately the testing does not always reveal the cause.

An allergic child is often sensitive to horse serum which is used in the preparation of most of our antitoxins. If it becomes necessary to administer antitoxin to such a child, the physician should make a preliminary test with a minute quantity of the serum before injecting the whole amount. If this is not done very severe and dangerous reactions will sometimes follow such an injection. Horrible experiences of this kind can be prevented if the mother will tell the physician whether the child, the child's parents or any direct blood relative ever suffered from eczema, hives, asthma or hay fever. The mother should let the physician know if the child ever had an injection of antitoxin or horse serum in the past, for in some cases an acquired sensitivity is developed and in this case also, care should be taken to make a preliminary test before injecting the whole amount.

Scurvy

A score of years ago when condensed milk and proprietary or patent foods made up the complete diet of many babies, scurvy was not an uncommon

disease. With the dissemination of our modern knowledge of infant feeding this disorder has become very rare.

In our discussion of vitamines we called attention to the role of Vitamine C in this disease. The symptoms develop only after a diet lacking in this vitamine has been used for two or three months. This vitamine is present in milk but is partially or completely destroyed by boiling. It is especially plentiful in orange, lemon and tomato juices and is present in considerable amounts in other fruit juices and in leafy vegetables.

The manifestations of this disease are swelling and bleeding of the gums, painful, tender lower extremities and at times swelling of these extremities due to the accumulation of blood underneath the periosteum or covering of the bones. Hemorrhages may occur in other parts of the body. The urine may show some blood. The baby is very sensitive to touch and unusually irritable. The condition clears up completely when Vitamine C is included in the diet. From one to two ounces of orange juice or tomato juice a day are sufficient to effect a cure in most cases. The customary inclusion of orange or tomato juice in baby's daily diet prevents the occurrence of the disease. With our method of feeding, we need not, therefore, be concerned about the danger of scurvy.

Intestinal Worms

All sorts of bad habits as picking at the nose and various nervous manifestations as grinding the teeth

at night and marked restlessness were once considered to be positive indications of the presence of intestinal worms. Pain in the abdomen and a ravenous appetite were thought to make the diagnosis certain.

We now know that all these symptoms are more frequently present in other disorders and that the only correct way to establish a diagnosis is to find the worms or their eggs in the stools. The common varieties are pinworms, which look like short white threads, round white worms which resemble the ordinary earth worm, and tape worms which are long and flat, appearing as a segmented tape.

The pinworms often cause marked itching about the anus especially at night. The prevention of re-infection by the child's unclean hands is an important part of the treatment.

The source of tape worm infection may be raw or partially cooked beef, pork or sausage which contain the larvae. Other types of tape worms are frequently found in dogs and cats. With a knowledge of these facts much can be done to prevent the infection.

The treatment varies with the type of intestinal worm, each type requiring a very definite régime with specific medication. The procedure in each case should be outlined by the physician.

Emergencies

The prevention of the conditions which give rise to emergencies is one of the most important aspects of child care.

The following objects should always be kept out of reach of the infant: Open safety pins, sharp, pointed toys or utensils, matches, medicines, insecticides and cleaning fluids, shoe polish, open talcum powder boxes. The danger of all these objects, except, perhaps, the last is obvious. Talcum powder boxes, especially those containing stearate of zinc, have caused many disastrous accidents. The infant while playing with the box may draw it toward his face. If the sliding cover is open or opens there is a shower of powder which is readily inhaled and so partially or completely asphyxiates the child. Some of the powder sometimes finds its way into the lung where it may produce pneumonia. A number of deaths have occurred from such accidents. In recent years special self-closing containers have been used for babies' talcum powder. Even with such a box, care must be taken to prevent an older child from spilling the powder over the infant's face. Dangerous articles like matches, poisons, insecticides and some of the cleaning fluids should be kept from the young child of pre-school age as well as the infant.

To prevent injuries from falling, the infant should never be left unattended on the table of a bathinette, or on an unguarded narrow bed or high-chair. The toddler should be protected from falling down stairs or out of the window by gates and window guards.

In lifting a child care should be taken not to pull him by the hand or to drag him along while walking as this procedure sometimes causes a dislocation of one of the bones of the forearm.

In spite of all precautionary measures accidents may occasionally occur. If there is the least suspicion of danger the child's physician should be summoned immediately. In the meantime the mother may render first aid.

If foreign bodies without sharp points as coins or marbles are swallowed, this need usually be no cause for anxiety. Such articles almost always pass through the stomach and intestine without ill effects. No cathartic should be given. If such a foreign body becomes lodged in the back of the throat a cautious attempt should be made to remove it with the fingers. If this fails and the object causes choking the child should be held by the feet with the head down and slapped upon the back.

The swallowing of sharp pointed articles like open safety pins or nails requires medical supervision and under no circumstances should cathartics be used. Eating large quantities of bread and mashed potatoes is often helpful. X-rays are used to reveal the location of metallic objects.

Young children should not be given nuts in the shell. Not infrequently while the child tries to open a nut with his teeth a piece of the shell slips down and lodges in the trachea or a bronchial tube.

Children sometimes put foreign bodies such as peas, beans or beads into the nose or ears. In such cases unless the object is near the nostril or the opening of the ear where it can be grasped easily, the mother should not attempt to remove the foreign body. Its removal should be left entirely to the physician.

If, in case of fire, the child's clothes begin to burn

he should be quickly wrapped in any heavy material that is within reach such as a rug, blanket or overcoat and he should at the same time be placed on the floor. In this position the flames are less likely to involve the face and head. For the treatment of the burn a solution of a heaping teaspoonful of baking soda in a glass of water should be prepared. Pieces of cheese cloth or soft linen soaked in the solution should be applied to the involved area.

For a simple, mild burn, butter may be used for immediate application followed later by carron oil (a mixture of linseed oil and lime water) or any soft soothing salve.

To stop bleeding at any point, a simple and effective measure is to apply pressure with a sterile piece of cotton or gauze. Where there is bleeding from any part of the arm or leg, the bleeding arm or leg should be raised. If the bleeding does not stop by application of pressure, a tourniquet should be applied above the bleeding point while waiting for the doctor. A tourniquet is a constricting band which by compressing the artery stops the flow of blood. A bandage, handkerchief, towel or any other strip of material at hand may be used as an improvised tourniquet. This should be wound tightly around the upper part of the arm or high up on the thigh. It is very important that such circular constriction should not be continued for more than twenty minutes.

For hemorrhage from the nose place the child in a position so that his head hangs backward. Apply cold to the back of the neck by means of a key

or a cloth wrung out in cold water. A cold compress may also be applied to the bridge of the nose. Roll up a piece of cotton or gauze and pack it tight into the nostril for a distance of about one inch. If bleeding still continues send for a doctor.

For cuts or open wounds, cleanse with a mild antiseptic like peroxide of hydrogen and then apply a few drops of tincture of iodine.

Puncture wounds made by nails, hooks, pins, needles, splinters or fire crackers may contain dirt contaminated with tetanus bacilli. It is important to consult the physician in such a case as the injection of tetanus antitoxin may be necessary.

Dog or cat bites require special attention. Whenever possible the animal should be kept in confinement until examined by public health experts for the presence of rabies. The wound should be cauterized at once by a physician.

If a poison is swallowed it may or may not be necessary to induce vomiting depending on the type of poison. If it does become necessary this can be done by introducing the finger way back in the child's throat or by giving a teaspoonful of syrup of ipecac. An antidote should be given. The following is a list of poisons most commonly swallowed by children, and specific treatment.

POISON**TREATMENT**

ARSENIC:
present in
some rat poisons
and vermin destroyers
Paris Green

Induce vomiting; then give fresh mixture of tincture of chloride of iron with calcined magnesia; then white of egg and soothing drinks

POISON

TREATMENT

PHOSPHORUS:
present in
match heads, some
rat poisons and
vermin destroyers

Induce vomiting; then give permanganate
of potash 4 or 5 grains in a glass of
water; then epsom salts for bowel elimi-
nation. No milk or oil.

MERCURY:
corrosive
sublimate
antiseptic
tablets

First give white of egg or whole egg
well beaten; flour and water; then in-
duce vomiting; follow with soothing
liquids.

IODINE

Considerable amounts starch or flour
mixed with water; then induce vomiting
and give soothing drinks.

OXALIC ACID

Magnesia or chalk and water or lime
water to neutralize acid.

CARBOLIC ACID
Creosote

Wash out mouth with lime water, pure
alcohol or 2 tablespoons of epsom salts in
half glass of water. Then raw egg or
sweet oil.

CAUSTIC ALKALIES
lye,
Quick lime
Caustic soda
Caustic potash

Vinegar, orange juice, lemon juice or tar-
taric or citric acid in large amounts of
water then soothing liquids.

GAS
illuminating or
coal gas

Phone Gas Co. for pulmotor; abundance
of fresh air; artificial respiration; am-
monia near nostrils to be inhaled.

III

COMMUNICABLE (CONTAGIOUS) DISEASES AND PREVENTIVE MEASURES

Definition of Terms—Infection—Incubation Period—Antibodies—
Immunity—Vaccines—Virus—
Diphtheria—Antitoxin—Schick Test—Immunization with Toxin—
Antitoxin and Toxoid—
Measles—Immunization with Convalescent Serum and Whole
Blood.
German Measles—
Scarlet Fever—Antitoxin—Dick Test—Immunization with Toxin.
Chicken Pox—Mumps.
Whooping Cough—Vaccine Treatment.
Small Pox—Vaccination.
Cerebro-Spinal Meningitis—Serum Treatment.
Typhoid Fever—Immunization with Typhoid Vaccine.
Infantile Paralysis—Prevention and Treatment with Convalescent
Serum.

DURING the past score of years a number of scientific discoveries for the prevention and control of communicable diseases of childhood have stimulated an ever widening interest in the whole subject of infection.

Studies in this field have necessitated the use of a number of terms which, though perfectly clear to physicians, are much confused in the minds of patients. Toxin-antitoxin, Schick test, antitoxin, vaccine, serum, are some of the names used indiscriminately and loosely by many people without knowledge of their specific significance. The physician desirous of giving his little patients the benefit of

the newer methods is sometimes hindered by the parent's unacquaintance with the facts underlying the procedure or to the pernicious influence of a certain few unscientific newspapers and periodicals. (Most of our newspapers however, have espoused the cause of science and have actively assisted in disseminating the new knowledge.)

Before proceeding with a discussion of the common infectious diseases of childhood we feel that it would be worth while to present, as simply as possible, the factors underlying their cause, prevention and termination.

For convenience all diseases may be divided into two groups. Infectious and noninfectious. An infectious disease is one caused by a specific microbe; typhoid is caused by the typhoid germ (typhoid bacillus), diphtheria is caused by the diphtheria germ (diphtheria bacillus). A noninfectious disease is one which is not caused by a germ; rickets, scurvy, etc. It is with the infectious diseases and their modes of development and termination that we are here concerned.

The germ causing the disease enters the body either through the skin or mucous membrane. Mucous membrane is the tissue which forms the lining of various organs of the body such as the nose, mouth, intestine, and bronchial tubes. A small injury to the skin or mucous membrane, so small that it is frequently invisible, is sufficient to allow the germs to enter the underlying tissues. Disease germs are transmitted to the body by contact, by the air, through contaminated water, or food and by insects. After the microbes enter the body they

may either remain localized near the portal of entry or they may travel via the blood or lymph stream to distant parts where they may lodge and cause an inflammation. Even when the microbes remain confined to one area, other parts of the body may be irritated by harmful substances produced and excreted by them and distributed by the blood. This is the case in diphtheria and tetanus.

The infectious disease itself is the reaction of the individual to the presence of harmful substances within the germs or produced by them. Such substances are called *toxins*.

The *incubation period* is the time which elapses between the invasion of the body by the microbe and the outbreak of the first symptoms of the disease. It varies in length in different infections, being short in the common cold and scarlet fever, and comparatively long in measles and tuberculosis.

The disease continues until the human organism forms enough substances called antibodies which kill the germs or neutralize the toxins so that the latter are no longer harmful. Those antibodies which neutralize toxins are called antitoxins. All these important fighting elements are developed in increasing amounts in the different organs which have been irritated by the microbes or their toxins. Such antibodies are frequently formed in greater amount than necessary to terminate the disease. These antibodies in excess appear in the blood stream. Incidentally it is of interest to know that it is the watery part of the blood or serum that contains practically all the overflowing amount of antibodies and antitoxins. These substances are specific in their nature,

that is, the diphtheria antitoxin is effective only against the diphtheria toxin and the typhoid antibodies can kill only the typhoid germs.

The antibodies that have been formed to fight the invading germs or their toxins, remain in the body for varying lengths of time throughout life, and thus help to protect the individual against a recurrence of the disease. Protection is afforded in another way also. The cells of the body having been made sensitive by the first attack of the disease will, if invaded again by the same microbe or toxin, produce antibodies in so remarkably short a time that the disease will have no chance to develop. These factors explain why children rarely contract a second attack of such diseases as measles, scarlet fever and whooping cough. This protection is called *immunity* and we speak of one child as being immune to diphtheria, another of being immune to scarlet fever, etc. Children are born with immunity to certain diseases (measles, scarlet fever etc.), an immunity derived from the mother's blood during the child's prenatal life. This immunity often does not last very long. In the case of measles, the infant is usually protected for five or six months so that we know that a child that is younger than five months as a rule does not "catch" measles. This *natural immunity* varies considerably in different individuals and for different diseases. In some conditions as in whooping cough no natural immunity usually exists so that the infant may contract the disease directly after birth.

The determination of whether a child is immune

or susceptible to a specific infection is of considerable importance because upon this knowledge will depend the solution of problems regarding isolation, immediate prophylactic treatment and the effectiveness of preventive measures. If we know that a child is immune to a disease we need have no anxiety about him even after his direct exposure to another child ill with that particular infection. It is also unnecessary to subject him to any kind of treatment. The most important function of an immunity test, however, is to ascertain the effectiveness of any suggested preventive measures. This has been well demonstrated by the *Schick Test*, a procedure which was originated in 1913 by Béla Schick, one of the authors of this book, to determine the immunity of an individual to diphtheria. About the same time Behring, a German scientist, the discoverer of diphtheria antitoxin, published his method of active immunization against diphtheria with a mixture of toxin and antitoxin. When some years later Dr. William Park, director of the New York City Department of Health Laboratory, adopted this most important preventive measure for diphtheria and improved the preparation of *toxin-antitoxin* (diphtheria toxin mixed with diphtheria antitoxin serum) the Schick test became of invaluable assistance in showing the real value of this new method of combating diphtheria on a large scale. When thousands of children with positive Schick tests (showing no immunity) developed negative Schick tests (showing immunity) after three inoculations with toxin-antitoxin the efficacy of this preparation in prevent-

ing diphtheria was definitely established. It was shown that 85% of all children so treated could be protected from this dangerous infection.

The Schick test is performed by injecting a drop (.2cc) of diluted diphtheria toxin into the skin on the inner side of the forearm which has been previously carefully washed with alcohol or ether. The amount of the toxin is so small that it can produce no harmful effects. If the individual has insufficient antitoxin in the tissue fluids to neutralize this small amount of diluted toxin a slightly raised red area, showing that the skin cells have been irritated appears at the site of injection in two or three days. This is a positive Schick test which demonstrates that no immunity to diphtheria exists. If no redness appears at the site of injection we know that the toxin has been neutralized by the individual's antitoxin. This absence of redness is referred to as a negative Schick test and indicates immunity to diphtheria.

The *Dick Test* is a method for determining immunity to scarlet fever. This test was originated by Drs. George and Gladys Dick of Chicago. For this test a toxin produced by another germ (*streptococcus hemolyticous*), is employed and is read in the same way as the Schick test.

The establishment of immunity in a susceptible individual is one of the most important and interesting problems in this field of general infection. There are two kinds of immunity either one of which we may endeavor to produce. An *active immunity* is one that depends upon the presence in the individual of antibodies which have been pro-

duced by his own body cells in response to an invasion of microbes or their toxins. This type of immunity often develops in the natural course of a disease. As we have previously noted one attack of measles produces a permanent immunity. Interestingly enough an active immunity can be developed in an individual by repeated contact with small quantities of microbes or their products, even though no actual manifestation of the disease occurs. This has been corroborated by the finding of a considerably larger percentage of children immune to diphtheria in poor, crowded sections of the city than in those parts where contact between individuals is not so close. Active immunity can also be produced by the injection of vaccines.

Vaccines are substances which, when injected into an individual, stimulate the cells of his body to produce antibodies. Vaccines may be a living attenuated virus as the cowpox virus used for protection against small pox, or large numbers of killed microbes as in the vaccine against typhoid fever, or a vaccine may consist of a toxin of a germ. A *virus* is an infectious substance, probably consisting of a yet invisible germ, the exact nature of which has not been determined. An example of a virus is found in measles. The germ that causes measles is unknown but the nasal secretions and the blood of patients suffering from measles contain a living substance which can be transmitted to another individual who if not immune will develop the disease. Toxins which are employed as vaccines may be somewhat less irritating by mixing them with antitoxin as is done in the productions of the popular

diphtheria toxin-antitoxin preparation or T. A., or by the addition of formalin as in the case of diphtheria *toxoid*.

If a vaccine is injected into an animal, the horse being the most commonly used for this purpose, the animal's blood serum will in the course of time contain antibodies against the specific germ or toxin. When a horse is injected with diphtheria toxin the production of diphtheria antitoxin will be stimulated. When this horse serum is used to cure human beings of diphtheria or to protect them from this infection, the horse serum containing the anti-toxin is injected into the human body and becomes diluted with the body fluids. This is called *passive immunity* because the body cells do not take any active part in its production. In recent years it has been found also that the blood serum of a human being, who has had a communicable disease may contain enough antibodies of that disease to confer a passive immunity upon another individual. This knowledge has been put to practical use in the temporary protection of children from measles by the use of convalescent measles serum or of the whole blood taken from the mother or father who presumably had the disease in childhood.

Unfortunately passive immunity does not last long as the foreign antibodies which, after their initial task of destroying microbes or rendering toxin harmless, is over, are destroyed by the cells of the human body.

It must be evident that when quick results are needed as in acute sickness or a recent exposure to infection, effective anti-serums should be used. In

cases where the infection is not acute or where the child is perfectly well, injections of tested vaccines given at varying intervals over a longer period of time are used to establish a lasting active immunity.

Immunity to a disease does not mean that the microbes causing it are no longer within the body. Curiously enough these microbes may sojourn on the surface of the tonsils or throat for a long time as sometimes occurs with diphtheria germs or may find a permanent home in the gall bladder as in the case of typhoid bacilli, without actually causing the disease or affecting the health of the individual in any way. Such people harboring harmful germs yet healthy themselves are called *carriers* and we speak of them as diphtheria carriers or typhoid carriers. The danger of such individuals lies in the fact that while they themselves do not show any symptoms of a disease, the germs which they harbor may be transmitted to others.

With these facts regarding the modes of infection and immunity in mind, a description of the most common, acute infections or communicable diseases of childhood can, we feel, be more readily understood. These diseases include diphtheria, measles, German measles, scarlet fever, chicken pox, mumps, whooping cough, small pox, cerebro-spinal meningitis, typhoid fever, poliomyelitis. Before it was known that these diseases were of an infectious nature caused by various microbes, the name "contagious" was applied to them to denote that they were communicated only by direct personal contact of some kind as by touch. The word "contagious"

should not be used in contra-distinction to "infectious." It is preferable to call these conditions which are transmitted from one person to another communicable diseases. For the general information of parents we describe herein the most common of these diseases. It should be understood however, that in all cases where suspicious symptoms develop, a physician should be called.

Diphtheria

Cause: Diphtheria bacillus.

Season: Most cases winter and spring.

Chief Source of Infection: Discharges emitted from the mouth or nose of a case in coughing, sneezing, spitting or in talking.

Susceptibility: The most susceptible age period is that between nine months and three years which is clearly shown in the following figures. It may also be noted that the susceptibility is still quite high at the age of seven years.

AGE	PER CENT SUSCEPTIBLE	AGE	PER CENT SUSCEPTIBLE
newborn	16	1 to 3 years	83
under 3 months	28	3 to 6 "	61
3 to 5 "	43	6 to 7 "	50
5 to 7 "	57	7 to 8 "	44
7 to 9 "	76	8 to 9 "	37
9 to 12 "	90	9 to 11 "	30

Incubation Period: Usually three to five days.

Onset: Often with fever, sore throat and swelling of the glands of the neck. The fever is in most cases not as high as that in tonsilitis. The throat

symptoms may be entirely absent so that unless the throat is always examined by the physician, the condition may be overlooked. Grayish white patches may be seen on the tonsils, palate, or throat. Diphtheria of the larynx may begin with a croupy cough or a rapidly increasing hoarseness. A blood-stained discharge from the nostrils may be the first sign of diphtheria of the nose.

Isolation: Usually about two weeks and until cultures of the throat in the case of pharyngeal diphtheria, or of the nose in nasal diphtheria, have proven negative for diphtheria germs.

Treatment and Preventive Measures: Early injection of diphtheria antitoxin is the only effective treatment. The prevention of diphtheria by active immunization with toxin-antitoxin or toxoid is one of the greatest contributions of science to the welfare of children. An endeavor should be made to *immunize every child against diphtheria*. In those cities like Auburn, N. Y., and New Haven, Connecticut, where almost the entire population of children have been immunized, diphtheria has been practically obliterated.

As the age of greatest susceptibility to diphtheria is between nine months and one year, the preventive injections should be given during this period. It is not advisable to administer them earlier because if given while the child is still naturally immune, they may not confer the desired lasting immunity. Of course, if for some reason the child has failed to receive the injections before the end of the first year they may be given at any time thereafter.

For immunizing children under five years diph-

theria toxoid is preferable to the previously used toxin-antitoxin mixture. The toxoid contains no horse serum so that possible sensitization to this substance is avoided and it establishes moreover a somewhat higher percentage of immunity. In older children the toxoid has a tendency to produce moderate reactions so that for them injections with toxin-antitoxin is recommended. For active immunization of infants and young children, three injections of $\frac{1}{2}$ -1 cc of toxoid at intervals of one to three weeks are given. For older children three injections of 1 cc toxin-antitoxin at weekly intervals are prescribed.

The Schick test should always be performed about six months after the injections to determine whether the child has become immune. It has been found that about 15 per cent of the children are not made immune and require another series of injections. The Schick test should be repeated again after six months in such cases. After a second series very few fail to be made immune.

The protection against diphtheria afforded by these inoculations lasts all through childhood in a large proportion of children. Tests have shown that 80 per cent of children have remained immune for at least ten years after the injections. As it is possible, however, to lose this immunity earlier in isolated instances, a Schick test should be given every two years to insure greater safety. This procedure can be included in the regular periodic health examination of the child so that no extra visit to the physician need be made for this purpose.

Measles

Cause: A virus—no specific germ having been definitely isolated.

Season: Most cases in spring.

Chief Sources of Infection: The discharges expelled from the mouth or nose of a case in sneezing, coughing or in talking. The discharges are most infectious early in the disease before the rash appears.

Susceptibility: After six months, practically all children.

Incubation Period: Seven to ten days. Rash almost always appears fourteen days after exposure.

Onset: For the first four or five days before the rash appears, fever, sneezing, cough, with "running" of the eyes and nose.

This period before the diagnosis is ordinarily made is the most infectious time. This explains why isolation is so frequently ineffectual in preventing the spread of the disease.

Minute white spots called Koplik spots appear on the mucous membrane of the cheeks before the eruption on the skin is seen. The rash appears four or five days after the initial symptoms, first upon the face and neck as discrete red spots and spreads downward over the rest of the body.

Measles is a serious disease especially in the young because of the rather frequent complications involving the lungs (pneumonia), and ears.

Isolation: Usually one week after the disappearance of the rash. Isolation is not very helpful because of the difficulty of early diagnosis.

Treatment and Preventive Measures: The sick-room should not be kept especially warm nor dark as was formerly believed. Strong sunlight may be excluded as the glare often causes slight pain in the inflamed eyes. The practice, widely employed years ago of keeping the room like a dungeon is condemned.

Children who have been exposed to measles may be immunized by an injection of convalescent serum or adult whole blood. It must be remembered that this is a passive immunity which lasts only three to six weeks. If exposed again at a subsequent time the child may develop measles. Often, instead of preventing the disease completely, these injections cause a mild or modified type of measles to develop. While we feel that this "modified measles" probably confers a permanent immunity, sufficient time has not elapsed to draw any definite conclusions.

All exposed infants and children up to the age of four years should be protected by the injection of measles convalescent serum or by adult whole blood when the serum cannot be obtained. Older children as well who have been exposed to the disease should be protected when they are sick, weak, markedly undernourished or recuperating from another illness, or during an epidemic of respiratory diseases when there is a greater likelihood of developing complications after measles. Under ordinary conditions the older healthy child need not be immunized.

The exposed child should of course be put to bed on the first appearance of suspicious symptoms.

German Measles

Cause: Unknown.

Season: Spring and winter.

Chief Source of Infection: Discharges expelled from the mouth or nose of a case in coughing, sneezing, spitting or talking.

Susceptibility: After six months—not very widespread.

Incubation Period: Sixteen to twenty-one days.

Onset: Very mild disease and is not related to measles in any way. There is usually only slight fever, sometimes none. Eruption appears early in discrete red spots and covers whole body. Posterior glands of neck are usually enlarged. This disease should not be confused with roseola infantum (*exanthem subitum*), a disease of infancy and early childhood in which a rash resembling that of German measles appears after the termination of a period of high fever for several days.

Isolation: Five to seven days.

Treatment and Preventive Measures: Rest for a few days is all that is usually necessary.

Scarlet Fever

Cause: Streptococcus hemolytic is at present accepted as the cause by most authorities.

Season: Most cases in fall, winter and spring.

Chief Source of Infection: Discharges sprayed or emitted from the mouth or nose of a case in spitting or talking and from a running ear or discharg-

ing gland. The peeling skin is not as infectious as is commonly believed unless contaminated by discharges from mouth, nose or elsewhere.

Susceptibility: Highest between four and seven years. Less than 50 per cent of all children contract the disease. The communicability is much less than in measles.

Incubation Period: Two to five days.

Onset: Great variations in cases, from mild cases with little or no fever and slight rash to very severe ones with high temperature and profuse rash. Usually some elevation of temperature, sore throat and vomiting. Rash usually appears in twelve to twenty-four hours after the onset of symptoms and consists of very fine points upon a uniform red blush. Desquamation or peeling may begin at the ninth or tenth day and continues for several weeks. The more common complications involve the kidneys, ears and glands.

The diagnosis can be confirmed by the so called "blanching test." This consists of the injection of a small amount of scarlet fever antitoxin into the skin. The fading of the rash around the site of injection is indicative of scarlet fever.

Isolation: Usually four weeks; longer if there is any discharge from infected ears or glands. Early isolation in scarlet fever may be very effective in preventing the spread of the disease. This is in contrast to measles, chicken pox and whooping cough which are much more readily communicable than scarlet fever.

Treatment and Prevention Measures: Proper isolation is very important. Scarlet fever antitoxin

should be used only in the treatment of severe cases. Mild cases recover without the injection of the serum. It is inadvisable to use the antitoxin in every case because of the severe serum sickness which often follows.

As a protective measure for exposed children we do not recommend either passive immunization with scarlet fever antitoxin or active immunity with scarlet fever toxin. By the time the immunity is established by toxin injections the period of greatest danger from infection from the sick child has usually passed. Moreover the immunity conferred by the injection of scarlet fever toxin frequently does not last more than one or two years. The Dick test is used for determining immunity to scarlet fever.

Chicken Pox

Cause: Unknown—most probably a filterable virus.

Season: Most cases in spring and fall.

Chief Source of Infection: Possibly by emanation from the mouth with or without direct contact. The fresh exudate from the eruption is also infectious.

Susceptibility: Very widespread.

Incubation Period: Fourteen to twenty-one days.

Onset: Usually mild with or without fever. Eruption consists of small blisters which gradually make their appearance over the scalp, face and body. Occasionally a sore throat when blisters develop in the tonsillar region. The blisters dry and form scabs which fall off. Occasionally severe cases with marked eruption and high fever are observed.

Isolation: Until all blisters are completely dried up.

Treatment and Preventive Measures: The most important factor in treatment is to prevent infection of the blisters by the child's scratching. The child should not be bathed until the blisters are dry.

It is possible to protect a child that has been exposed to the disease by the injection of convalescent blood serum. This produces a passive immunity which lasts only a few weeks. The disease is so mild, however, that the use of the preventive measure is rarely indicated.

Mumps

Cause: Unknown.

Season: Any season.

Chief Source of Infection: The discharge emitted from the mouth of a case in coughing, spitting or talking.

Susceptibility: Largest number of cases from fifth to fifteenth year. Infants are rarely affected.

Incubation Period: Fourteen to twenty-one days.

Onset: Usually slight fever and pain and swelling in front of and below the ear. At times the pain is referred to the ear. One or both sides may be affected. The condition is an inflammation of the salivary glands (Parotid and Submaxillary). A complication that occasionally occurs is an inflammation of the testicles in a male and of the ovaries in a female.

Isolation Period: Until all swellings have subsided.

Treatment and Preventive Measures: The disease is usually very mild. There is no specific treatment. Measures for the relief of pain may be prescribed by the physician.

Convalescent serum has been used as a preventive measure in institutions.

Whooping Cough

Cause: Bordet-Gengou bacillus.

Season: Most cases in winter and spring. Epidemics frequently follow epidemics of measles.

Chief Source of Infection: Discharge sprayed or expelled from the mouth or nose of a case in coughing, sneezing, spitting or talking.

Susceptibility: Very widespread—it may occur even in the newborn baby.

Incubation Period: Seven to fourteen days.

Onset: With cough which during the first week or two, may sound like an ordinary cold. After ten days or two weeks the cough becomes spasmodic in character ending with a whoop and frequently with vomiting. It is worse at night. Blood examination is helpful for early diagnosis. The cough usually subsides after six to eight weeks. Lung complications (pneumonia) are frequent in infants and young children.

Isolation: At least six weeks or until spasmodic cough has stopped.

Treatment and Preventive Measures: To avoid complications the child should be kept in bed at the beginning of the disease for a week or two. In ad-

dition the physician will usually prescribe a sedative mixture to relieve the cough.

The reports from the use of vaccine in the treatment of this condition have shown wide differences of opinion from the greatest enthusiasm on the one hand to absolute condemnation on the other. As our own experience has made us rather doubtful of its value we do not recommend its use as a routine procedure. In a severe case of whooping cough, however, where other measures have failed to give relief, the vaccine injection may be tried.

For the prevention of the disease the vaccine has not given satisfactory results.

Small Pox

Cause: A virus—the germ has not yet been definitely identified.

Season: Before vaccination was so generally administered the disease usually occurred in the spring and fall.

Chief Source of Infection: Discharge from the nose, mouth, blisters and scabs of a case.

Susceptibility: Universal.

Incubation Period: Fourteen days.

Onset: Sudden with high fever and severe pain in head, back and extremities. The rash appears a few days later.

Isolation: Until complete recovery with disappearance of all scabs.

Treatment and Preventive Measures: Vaccination against small pox with the cowpox virus has

proven to be one of the greatest boons to mankind. Before vaccination was used, the toll of life and the disfigurement from the ravages of this scourge were terrific. Even now where vaccination has not been made compulsory by state law a considerable number of cases develop each year. In one year over fifty thousand cases of smallpox have occurred in the United States. Universal vaccination for one generation would undoubtedly obliterate the disease completely.

Every infant should be vaccinated against small pox at about six months of age. This should be repeated every six years or before, if an outbreak of the disease occurs. The most favorable time to vaccinate is the late spring or early fall as during these periods but few diseases are usually prevalent.

The upper part of the arm is the most preferable part for vaccination but in girl infants it may be done on the leg if special care is taken to prevent contamination with the excreta.

The vaccination usually "takes" in four or five days after the inoculation, when a blister surrounded by a red area develops at the site of inoculation. A few days later there may be constitutional symptoms including fever, vomiting and fretfulness. The food should be reduced in amount. Locally no shields or constricting bandages should be used. The area should be kept dry and may be covered by a sterile piece of gauze or linen which has been sewed into the sleeve. The tub bath should be omitted for a few days until the blister dries. A scab is then formed which falls off after a week or two.

Cerebro-Spinal Meningitis

Cause: Meningococcus.

Season: Winter and spring.

Chief Source of Infection: The discharge from the nose and less frequently from the mouth.

Susceptibility: Widespread.

Incubation Period: Three days to two weeks.

Onset: Sudden, with fever, headache, vomiting and stiffness of the neck. A rash appears in some cases. The diagnosis is made from the fluid removed by spinal puncture.

Isolation: Until complete recovery.

Treatment and Preventive Measures: Antimeningococcus serum is a specific remedy for the disease. It should be injected into the spine as soon as the diagnosis is made and repeated as often as the physician finds it necessary. As the germs are frequently found in the blood as well as in the spinal fluid the serum is also injected into a vein.

During epidemics the disease may be spread by "carriers." To prevent the disease at such times the "carriers" must be found and isolated.

Typhoid Fever

Cause: Typhoid bacillus.

Season: Summer and fall.

Chief Source of Infection: Drinking water or food, especially milk and oysters that have been contaminated by the feces or urine of a typhoid carrier. The germs may be transmitted by contaminated fin-

gers and also by flies. Bathing in polluted waters may be a source of infection.

Susceptibility: Widespread.

Incubation Period: One to two weeks.

Onset: While in adults the onset of the disease is usually gradual, a sudden rise in temperature with headache and prostration are not infrequently observed as the first manifestations of the disease in children. An eruption (rose spots) usually appears on the abdomen during the second week. The diagnosis is often made by the finding of typhoid germs in the blood or by a positive Widal test. The latter shows the presence of antibodies in the blood. The disease usually runs its course in four to five weeks. The most important complications, but complications which rarely occur in childhood, are hemorrhage from the bowels and peritonitis.

Isolation: Until the temperature is normal for ten days and until the examination of two specimens of feces collected at least twenty-four hours apart do not show the presence of typhoid bacilli.

Treatment and Preventive Measures: There is no specific treatment for typhoid but the physician can relieve various symptoms as they arise. A high caloric diet is indicated. Concentration of the food is of great assistance in providing the required nourishment in a comparatively small quantity.

Typhoid fever can be prevented by active immunization with typhoid vaccine. Three inoculations are required. They are given at weekly intervals. In some cases a mild reaction consisting of slight fever and malaise and a painful arm occurs but it

usually lasts only a day or two. All children attending a summer camp should certainly be protected from typhoid fever by inoculation with typhoid vaccine. Others leaving the city for the summer should be immunized also if the sanitary conditions of the resort are not known to be absolutely safe.

Milk and water should be boiled, where any suspicion exists. Bathing in polluted water should be carefully avoided.

Infantile Paralysis (*Anterior Poliomyelitis*)

Cause: A virus found in the nervous system and in the secretion of the nose of a person afflicted with the disease, or of a carrier.

Season: Summer and fall.

Chief Source of Infection: Not definitely known.

Susceptibility: Greatest during the first four years.

Incubation Period: Two to fourteen days.

Onset: Usually sudden with fever, vomiting and slight stiffness of the neck often accompanied by a change in the behavior of the child. Marked irritability and sensitiveness may be present. Paralysis does not occur in all cases as is commonly believed. If it does occur it sets in two to three days after the first symptoms and usually affects the limbs. In some epidemics the majority of cases do not become paralyzed. It is probable that in many instances the disease runs a mild course and is unrecognized. These individuals may, however, develop an immunity. This may explain why in epidemics of infantile paralysis the number of people

afflicted is much less than in epidemics of such infections as measles or whooping cough.

Many of the cases in whom paralysis occurs recover completely. Unfortunately some cases remain permanently crippled.

Isolation: Two weeks.

Treatment and Preventive Measures: If paralysis occurs the most essential factor in treatment is early orthopedic care to prevent permanent deformities as far as possible.

Convalescent blood serum and adult whole blood have been extensively used for the treatment and prevention of this disease but the results thus far have not shown them to be of definite value.



During recent years much progress has been made in the control and prevention of the infectious diseases of childhood. Workers in this field are ever seeking to unravel the mysteries that still confront us. Their efforts will undoubtedly bring new discoveries for the further protection and welfare of children. If parents will but bestow the benefits of the new knowledge upon their children, the splendid work in the fight against the diseases of childhood will not be in vain.





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